

THE MINING AND METALLURGICAL JOURNAL.

Vol. XVIII., No. 2

LOS ANGELES, CAL., October 15, 1897.

Price 10 Cents

The Gold & Silver Extraction Co.,
OF AMERICA, LIMITED.



TRADE MARK
CAPITAL,
\$500,000

The Original Cyanide Process
Simple Reliable Economical
Gold Medal Columbian Exposition
1893

Mine Owners and others having Refractory and Low Grade Gold and Silver Ores and Tailings should have their material tested by

The MacArthur-Forrest Cyanide Process Samples assayed and fully reported upon. Particulars upon application.

ADVISORY BOARD IN THE UNITED STATES
Geo. A. Anderson, General Manager;
Hugh Butler, Attorney; W. S. Ward;
J. Stanley Muir, Technical Manager.

CALIFORNIA AND NEVADA AGENT,
Bertram Hunt, 216 Sansome St., San Francisco

Office: McPhee Building, Denver, Col.

THE EDWARD P. ALLIS COMPANY

Mining, Milling and Smelting Machinery

Crushers, Concentrators, Pumps, Compressors, Hoists, Boilers,
Reliance Crushing Rolls, Reynolds Corliss Engines, &c.

Send for Catalogue.

MILWAUKEE, WIS.

THE RUSSELL PROCESS

The Improved Method of Lixiviation for Free and Rebellious Silver and Gold Ores and Tailings, Either Raw or After Roasting. Send for New Publications Just Issued :

The Russell Process Co. - Park City, Utah.

Bullock's Diamond Prospecting Core Drills

These are the only Machines which will give absolutely accurate records of borings. Fifteen styles and sizes. Operated by hand, horse, steam, air or electricity.

Monarch Rock Drills

Any style of mounting. Simple, compact, economical. Operated by air or steam. Hoisting and Haulage Machinery to fill any requirements.

M. C. BULLOCK MFC. CO.,

1178 West Lake Street,

CHICAGO, ILLINOIS

ADAMANTINE SHOES & DIES

AND

CHROME CAST STEEL

Cams, Tappets, Bosses, Roll
Shells and Crusher Plates.



Stamp Shoes

Stamp Dies



These castings are extensively used in all the Mining States and Territories of North and South America. Guaranteed to prove better and cheaper than any others. Orders solicited subject to above conditions. When ordering send sketch with exact dimensions. Send for Illustrated Circular.

CHROME STEEL WORKS,

Kent Ave. & Keap St., BROOKLYN, N. Y.

Stamp Cam

The Pelton Water Wheel

Affords the Most Economical and Reliable Power for Mining, Electric and all other purposes.

7000 WHEELS NOW RUNNING

PELTON WATER WHEEL CO., 121 Main St., San Francisco, Cal.

Consolidated Kansas City Smelting & Refining Co.

BUYERS OF ALL CLASSES OF

BULLION, MATTE, ORE-MILL PRODUCTS, GOLD & SILVER BARS

Smelting Works { Leadville, Colorado.
El Paso, Texas.
Argentine, Kansas.

REFINERIES: ARGENTINE KANSAS.

FOLLOWING CODES USED: At Argentia, Kansas.
A. E. G.
Metting & Mall's
and Bedford McNeill's.

Ore Purchasing Agencies

Spokane, Wash. Salt Lake, Utah.
Leadville, Colorado. Denver, Colorado.
El Paso, Texas. Argentine, Kansas.
Cripple Creek, Colorado

— THE —
ROESSLER & HASSLACHER Chemical Co.
100 William St., New York

CYANIDE

Peroxide of Sodium

Hypoalumite of Soda

Chloride of Lime

Sulphide of Iron



And Other Chemicals for Mining Purposes.

PARKE & LACY COMPANY

21 and 23 FREMONT STREET, SAN FRANCISCO, CAL.

LICENSEE FOR THE MANUFACTURE AND SALE OF



The Huntington Centrifugal Roller Quartz Mill

THE HUNTINGTON MILL is so well and favorably known among mining men throughout the world that any description of it would seem superfluous. They are in use in the United States, Canada, Mexico, Central and South America, Australia, China, Japan, and South Africa. In fact, wherever mines exist, and have given the best satisfaction of all quartz-crushing mills.

The construction of this mill has lately been much improved and we claim it to be the CHEAPEST, MOST EFFICIENT, SIMPLEST, AND MOST DURABLE MILL UPON THE MARKET.

← CATALOGUE UPON APPLICATION →

Refractory Ores

Successfully treated by the PORTER ELECTRICAL PROCESS

E. H. ALEXANDER,
Secretary

Address

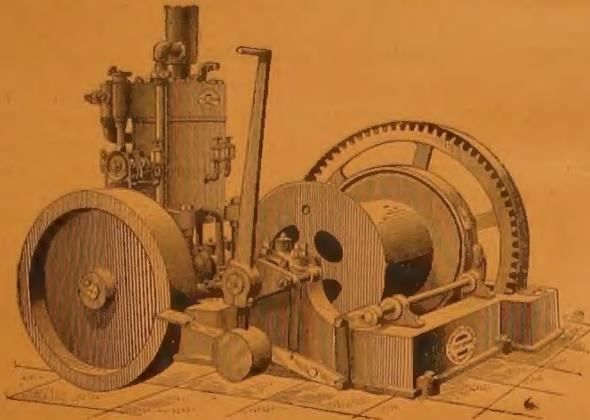
The Porter Gold and Silver Extraction Company

LOS ANGELES, CAL.

McDearmon & Co.
Asbestos Boiler & Steam Pipe Coverings
Asbestos Cement for Boilers, drums, Heaters,
etc. Special facilities for supplying
the mining trade.
Pacific Coast Agent for E. W. John's Co's Asbestos
Sectional Coverings.
1122 Sacramento Street, San Francisco, Cal.

AXELSON MACHINE COMPANY
HIGH GRADE MACHINE WORKS
SPECIAL TOOLS TO ORDER
Gear Cutting, Milling and Universal Grinding, Jobbing and Repairing.
1101-3-5 North Main Street, Los Angeles, Cal.

"Union" Hoist



Union Gas or Oil Engine and Hoist Combined, on strong, iron base.

No Fire No Steam No Boiler No Danger

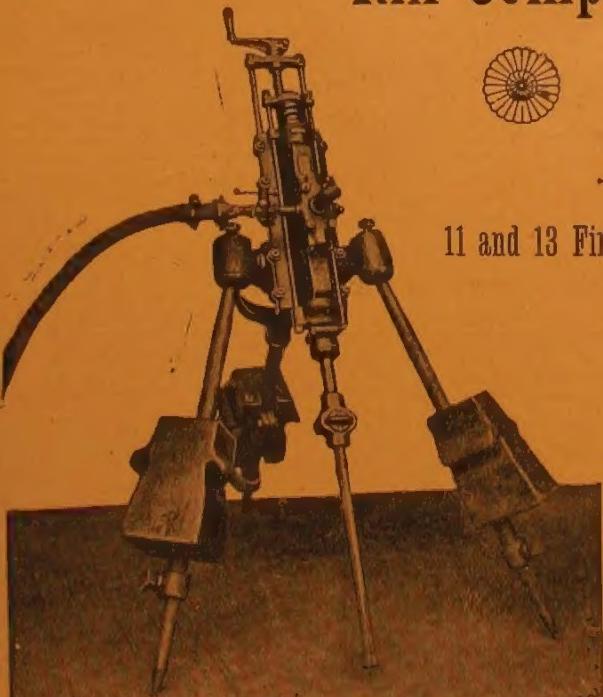
TEN YEARS' EXPERIENCE. TWO THOUSAND ENGINES IN USE.

Started instantly. Compact, strong, simple, efficient, economical. Perfectly governed, so that oil is used only in proportion to the work done. No expense when idle.

Particularly Adapted to Mining in Localities Where
Fuel and Water are Expensive.

Built in the following sizes:—1 H.P., 4 H.P., 6 H.P., 8 H.P., 10 H.P., 15 H.P.
20 H.P., 30 H.P., 40 H.P.
Send for Catalogue and state what H. P. required.

Union Gas Engine Co.,
301 Howard Street, San Francisco, Cal.



Rix Compressed Air Machinery Co.

11 and 13 First Street, San Francisco, Cal.

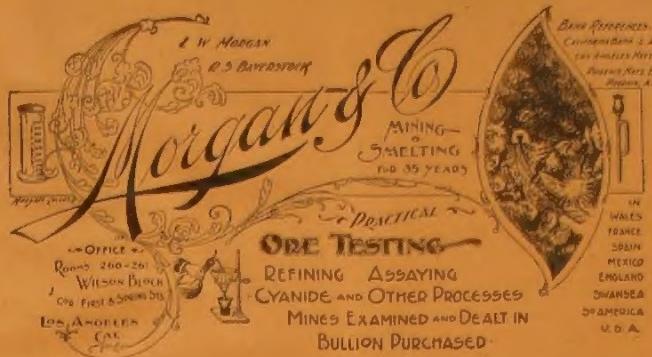
MANUFACTURERS OF

Pneumatic Machinery of all kinds,
Rock Drills,
Air Compressors,
Compressed Air Hoisting Engines,
Stone Cutting and Carving Tools, driven by
Compressed air.
Compressed Air Machinery for quarrying stone.
Compressed Air Pumps for both cold & hot air
Appliances for reheating compressed air.
"Ferrite" Shoes and Dies.
Projectile Steel Shoes and Dies,
Guaranteed to be the most economical Shoe and Die
on the market.

ALSO DEALERS IN

General Mining Machinery

Send for Latest Catalogue.



FRANKLIN BOOTH

MINING ENGINEER AND METALLURGIST

...With L. BOOTH & SONS,

MECHANICAL ENGINEERS AND DEALERS IN

Machinery and Mining Supplies

AGENTS Union Gasoline Hoists, Joshua Hendy Stamp
Mills, Rock Breakers, Ore Buckets, and Cars, Davis Horse Whim, Dean
and Marsh Steam Pumps, Pennsylvania Boiler Works, Chandler
Taylor Engines, Agent Dodge Manufacturing Co's Wood-
Split Pulleys and Power Transmission Machinery,
Rubber and Leather Belting and Oils.

338 North Main street, BAKER BLOCK, Los Angeles, Cal.

WILLIAM H. EMANUEL,

REPRESENTING

RAND DRILL COMPANY,
THE EDW P. ALLIS CO.,

Air Drills and Compressors
General Mining, Milling and Smelting

TRENTON IRON CO.,

Machinery and Reynolds Corliss Engine

HENRY R. WORTHINGTON,

Wire Rope and Bleichert Tramways

DENVER

General Service and Mining Pumps

ROBIN'S BELT CONVEYOR

COLORADO

WOODBURY CONCENTRATOR



No. 121 First St., San Francisco

FULL LINE OF Chemical Glassware

Of every description carried in stock, and sold wholesale and retail at

EASTERN PRICES

EX-TER

Pacific Optical
Company.

Manufacturers and Importers

245 SOUTH SPRING STREET,
LOS ANGELES, CAL.

We also carry a full line of Magnifiers, Microscopes, Compasses, Barometers, Surveying Instruments, Thermometers, and Hydrometers in stock in both our wholesale and retail departments.

SEND FOR OUR PRICES

ALPHABETICAL INDEX TO ADVERTISERS

A	F	L	R
Abbott, W. O.	5	Lassell, L. J.	26
Abbott & C. H. M. y.	25	Lacy Manufacturing Co.	28
Ainsworth, Wm. H.	1	Leifel & Co., James	2
Allis Co., Edward F.	8	Leonard & Hillis	1
Alphabetical Index to Advertisers	24	Lewin, Thos.	18
Anti-Catolic Covering Co.	25	Lloyd, B. T.	21
Aubury, L. E.	22	Loudergan & Calkins	26
Austin Bros.	22	Los Angeles Business College	3
Axelson Machine Co.	2	Los Angeles Windmill Co.	19
B		Luckhardt, C. A.	19
Bailey A. A.	20	Lynch, Jno.	24
Baker Iron Works	28		
Best Manufacturing Co.	26		
Bl Metallic Assay Office	21		
Booth & Sons, L.	2		
Booth & Co., C. B.	27		
Bradley Silver Co.	6		
Brown & Co., F. W.	20		
Brown, M. R., Horace F.	21		
Burlingham, E. H.	21		
Byron Jackson Machine Works	3		
C			
Carvel, A. S.	24		
California Perforating Screw Co.			
California Wire Works			
Chamberlain, Lee & Co.			
Chauvenet & Brother, Regis.			
Chicago & Aurora Smelting & Refining Co.			
Chicago School of Assaying			
Chrome Steel Works			
Cobb & Hessneyer			
Colorado Gas Works			
Cooper, Fred R.			
Cooley, Geo. M.			
Compania Industrial Mexicana			
Consolidated Pipe Co.			
Conn. Kansas City Smelting & Refining Co.			
D			
Dennison, E. G.	21		
Denver Fire Clay Co.	17 & 25		
Denver Public Sampling Wks.	26		
Denver & Rio Grande Railway	20		
Dee & Co., Thos. J.	25		
Dickman & Mackenzie	3		
Doub, D. M.	22		
Dow Steam Pump Works	4		
Drake, Dr. F. W.	18		
Dredging & Mining Mach Co.	20		
Ducommun, C.	25		
E			
Eager & Co.	6		
Emanuel, Wm. H.	2		
F			
Fauth & Co.	17		
Flint & Lomax	24		
Ford, R. E.	1		
Foresham & Co.	20		
Fowler, G. C.	26		
Fulton Engine Works	26		
Fraser & Chalmers	21		
Fruit Ore Concentrators	21		
Fruhling, Wm. A.	24		
G			
Garburt, F. C.	18		
Garnett & Co., W. T.	2		
Goldsmith Bros.	2		
Gold & Silver Extraction Co. of America	18		
Grimwood, Chas. P.	3		
H			
Hallowell, E. L.	24		
Hanford Iron Works	21		
Hanks, Abbott H.	24		
Harrington & King Perforating Co.	24		
Harper & Reynold.	20		
Heckelmann v McCann	25		
Hercules Gas Engine	16		
Hendy Machine Works, Joshua	6, 21 & 25		
Hendrie & Bothoff Manufacturing Co.	25		
Hershey, Clarence	27		
Heiter, Peter	20		
Hoeger, Wm. H.	21		
Hoyt, Geo. F.	21		
J			
Jeffrey Manufacturing Co.	8		
Johannesburg Sampling Works	20		
Johnson, F. M.	17		
Johnson & Musser	26		
Jones & Jones	24		
Judson, A. F.	4		
K			
Kempton, C. W.	24		
Kern Co. Assay Office	24		
King, J. Q. A.	23		
Kratzner, A.	18		
Krogh Manufacturing Co.	18		
L			
Lassell, L. J.	17		
Lacy Manufacturing Co.	24		
Leifel & Co., James	24		
Leonard & Hillis	24		
Lewin, Thos.	18		
Lloyd, B. T.	26		
Loudergan & Calkins	26		
Los Angeles Business College	28		
Los Angeles Windmill Co.	19		
Luckhardt, C. A.	19		
Lynch, Jno.	24		
M			
Machinery and Electrical Co.			
Malt, J.			
Masters, J. H.			
Matthews Manufacturing Co.			
McDearmon & Co.			
McIntosh & Wolpum			
Metal Market			
Michigan Mining School			
Mine & Smelter Supply Co.			
Mining Stock Quotations			
Montague, W. W.			
Montgomery, Ward & Co.			
Morgan Refractory Machinery Co., H.			
Morgan & Co.			
Morgan Refractory Ore Reduction Co.			
Morris Rock Breaker and Ore Crusher			
Murray Iron Works			
N			
Neiden Judson Drug Co.	20		
Nelson & Co., H. L.	21		
Nolan & Smith	21		
O			
Oakland Iron Works	15		
O'Bannon, J. C.	18		
O'Hallard & Co., N.	18		
P			
Pacific Mining Machinery Co.			
Pacific Optical Company			
Pacific Tank Co.			
Parker & Peck Co.			
Parke & Lucy Co.	1 & 25		
Pelton Water Wheel Co.			
Pennington & Sons Co., Geo. W.			
Perkins Pump and Engine Co.			
Pettee, J. W.			
Pettier, A. J.			
Pollock, James A.			
Pope, J. B.			
Price & Son, Thos.			
Pueblo Foundry and Machine Shop			
Pueblo Smelting & Refining Co.			
Puget Sound Reduction Co.			
POSITIONS WANTED			
WANTED, by a young experienced man, position as quartz mill man, one who can keep mill running.			
Address,			
A. E. CHARLESWORTH, LOCKFORD, CAL.			
FOR SALE!			
I HAVE some good gold mining properties for sale at reasonable prices, some developed and some real good properties at Ward, Eldora, Gold Hill, Jamestown, Magenta, Caribon and Sugar Loaf. Write stating what you want or call on me.			
JAMES M. NORTH, Former County Judge, BOULDER, COLO.			
DICKMAN & MACKENZIE			
MINING ENGINEERS, ASSAYERS AND CHEMISTS			
1224 Rockery Bldg, Chicago Box 77, El Paso, Texas			
Orders by mail or express promptly attended to. Mining properties examined.			
GOLDSMITH BROS.			
Refiners and Assayers			
63 and 65 Washington Street, Chicago, Illinois			
Shipments of Gold and Silver Bullion solicited. We pay 20.25 per ounce for gold, market price for silver contained therein. No charge for separating. ASSAYE OF Ores and ANALYSIS of all kinds Promptly Made.			
CONSOLIDATED PIPE COMPANY,			
IRON AND STEEL WATER PIPE A SPECIALTY			
IRON & STEEL WATER PIPE & WELL CASING			
73-889 STEPHENSON AVENUE,	LOS ANGELES, CAL.		
A. C. HARPER, Proprietor.			
Telephone Main 420	Post Office Box 867		
W. O. ABBOTT, ASSAYER			
ASSAYING IN ALL ITS BRANCHES CHEMICAL DETERMINATIONS ACCURATELY MADE			
TOMBSTONE -	ARIZONA		
WRECKING PUMP AND STEAM ENGINE FOR 750 FOOT LIFT.			
Compound Pump 200 foot lift for Hydraulic Mining			

John Wigmore and Sons Co.,

GENERAL MINING SUPPLIES

HEAVY HARDWARE

IRON AND STEEL

AGENTS FOR

CANTON DRILL STEEL

John A. Roebling's Sons Co.'s
WIRE CABLES.

Giant Powder

117 to 123 S. LOS ANGELES ST.
LOS ANGELES, CAL.

CONSOLIDATED PIPE COMPANY,

IRON AND STEEL WATER PIPE A SPECIALTY

IRON & STEEL
WATER PIPE & WELL CASING

73-889 STEPHENSON AVENUE,

LOS ANGELES, CAL.

A. C. HARPER, Proprietor.

Telephone Main 420

Post Office Box 867

W. O. ABBOTT, ASSAYER

ASSAYING IN ALL ITS BRANCHES

CHEMICAL DETERMINATIONS ACCURATELY MADE

TOMBSTONE -

ARIZONA

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulic Mining

WRECKING PUMP AND STEAM ENGINE FOR
750 FOOT LIFT.

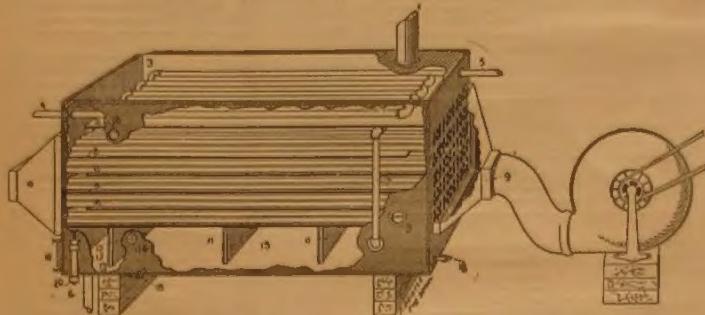
PUMPING MACHINERY

FOR EVERY POSSIBLE DUTY.

DOW STEAM PUMP WORKS,

SAN FRANCISCO, CAL.

Kellers' New Improved Feed Water Heater, Purifier, Condenser, and Hot Air Blast Combined.



Built entirely upon new mechanical lines to that of all other Heaters; 30 per cent of fuel saved, and Steam condensed saving nearly one half of Water Bill.

No compounds needed to keep boilers from scaling as all impurities are precipitated and lodged in the tank.

Feed water is superheated after it leaves the pump and goes to the boiler at boiling temperature without "back pressure" on engine or no charge for Device; the Thermometer and Back Pressure Gage registers results.

180 deg. of hot air forced out of device which can be utilized for drying or heating purposes or carried under the boiler furnaces as a force draft. The foul air can all be drawn out of mine with this same attachment. Where the air is not required leave off the Fan, it will not condense quite so fast, but other results will be the same. This Device is endorsed by practical Mechanics and the largest Smelters and Plants in the country. THIS IS THE ONLY HEATER ENDORSED BY THE AMERICAN INSTITUTE OF MINING ENGINEERS. Send for Descriptive Catalogue.

Star Boiler, Sheet Iron and Feed Water Heater Works,

2166-76 FIFTEENTH STREET,

DENVER, COLORADO

THEODOR LEXOW
106 Broadway New York
Importers of
CARBONS
—FOR—
DIAMOND DRILLS and all Mechanical
Purposes

Henry Demmert

J. HOWARD WILSON
Assayer & Chemist

A Specialty Made of Umpire Work.

306 Santa Fe Ave., Pueblo, Colo.

A. F. JUDSON, E. M.
Geologist and Mining Engineer,

Mines Examined and Reported on,
COLTON, CALIFORNIA

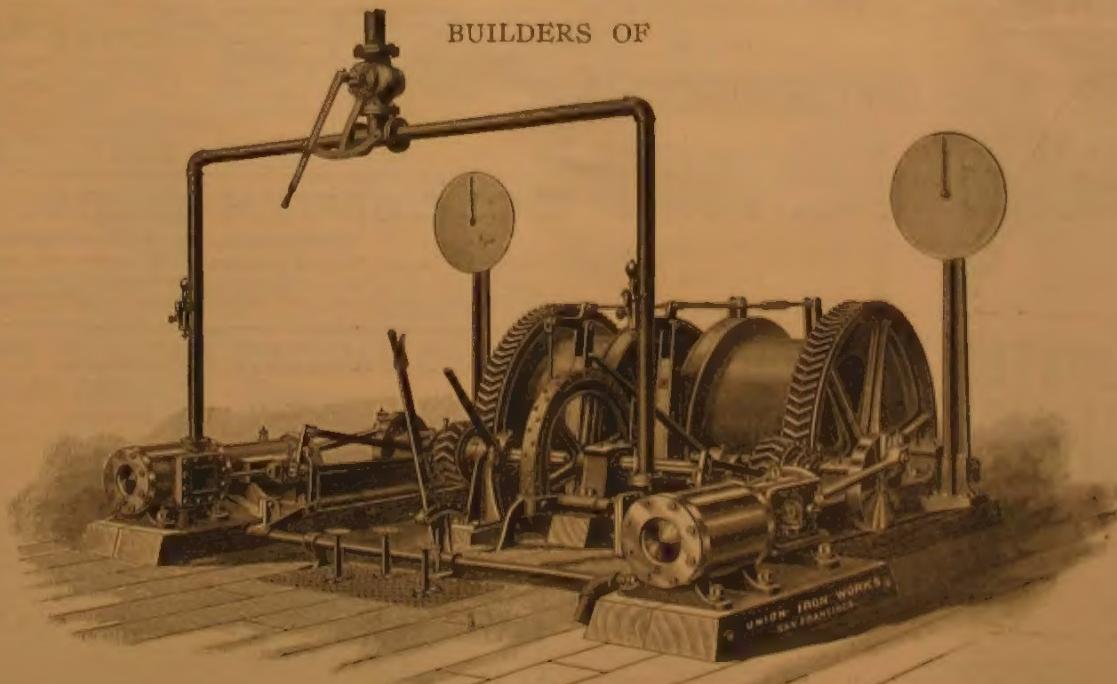
A. A. WARREN

ASSAYER AND
ANALYTICAL CHEMIST

COLTON, CALIFORNIA

UNION IRON WORKS

BUILDERS OF



Mining, Milling, Concentrating and Smelting Machinery

222 MARKET STREET, SAN FRANCISCO, CAL.

SEND FOR NEW CATALOGUE

PETER HEER,
222-224 E. Washington St., CHICAGO
Manufacturers of Highest Class

Engineering and Mining Instruments,
T-Squares, Triangles, Scales, Etc. Repairs care-
fully and promptly executed. Drafting Sup-
plies of all kinds. Catalogue on application.

School of Practical, Civil, Mechanical,
Electrical and Mining Engineering.
Surveying, Architecture, Drawing and Assaying.
633 MARKET ST., SAN FRANCISCO, CAL.

OPEN ALL DAY.
PROF. VAN DER MAAILLEN, Jr., President.
Assaying of Ores, \$25; Bullion and Chlorination
Assays, \$5; Microscopic Assay Sto., Full Course
of Assaying \$50. Established 1864.
Send for Circular.

JOHN T. REED

Assayer and Analytical Chemist

Assays made for all valuable metals. Analysis
of sand or mineral materials. Special attention
given to the sampling of mines. Estimat-
ing the value of and testing the nature of
their ores. 100 pound lots of ore sampled, and
working tests made by Cyanide, Amalgama-
tion and Chlorination Processes.

OFFICE 622 COURT STREET,

San Bernardino, California

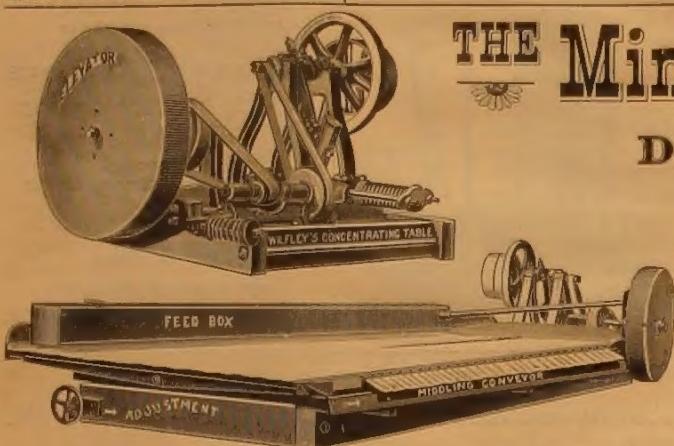


Pacific Amalgamator

PAT. APRIL 20, 1897

We claim for this machine closer saving than
any machine ever invented. It has a large silver
plated Amalgamator tray. Constructed in the
most perfect workmanship. It is simple and dur-
able. Any ordinary man can run it. The plates are
under the eye of the operator while running. No
loss of fine gold or quicksilver with this machine.
They are built as shown in cut for quartz mills or
placer work. We attach placer attachment to the
machine which consists of steel riffles, automatic
feed and screen. It requires very little water on
placer work. Can be run by hand or power. Now
in use in all parts of the United States, British
Columbia and Mexico. Send for Catalogue.

Pacific Mining Machinery Co., 129 First St., San Francisco



THE Mine & Smelter Supply Co.

DENVER, COLORADO

ARE SOLE AGENTS FOR THE

WILFLEY CONCENTRATOR

and claim for it BETTER work than any Concentra-
tor made, with a capacity of from 15 to 25 tons per day
of 24 hours. It is simplicity itself. No moving belts
or intricate parts. Any one can learn to operate in an hour.

For confirmation of all of the above we refer to Henry Lowe, Puzzle Mine, Breckenridge, Colo.; M. E. Smith Concentrator, Golden, Colo.; Mary Murphy Mine, St. Elmo, Colo.; W. E. Renshaw, Mayflower Mill, Idaho Springs, Colo.; H. E. Woods, Denver, Colo.; Standard Mill, Wallace, Idaho; Smuggler Mill, Aspen, Colo.; Smuggler Union Mill, Telluride, Colo.

BRECKENRIDGE, COLO., Dec. 1, 1896.

THE MINE AND SMELTER SUPPLY CO., Denver, Colo.

GENTLEMEN.—You asked us what experience we have had with the Wilfley Table, and we
would state that after trying a Woodsbury, a True Vanner, Johnston, Embry and Electrical Pro-
cess; Hartz Jig and Buddies, we have found that the Wilfley Table is the only table that has given us
satisfaction. We are using two tables, at a profit to our mill, where all other devices have proven a
failure, and we can heartily recommend them to any intending purchasers. Yours very truly,

(Signed), R. DE BARNEUER, Sept.

We also Handle the Huson Wire Tramway.

These Tables have displaced belt tables of almost every make,
as is shown by letters in our possession.

Price = \$450.

Assayers AND Chemists SUPPLIES

MANUFACTURERS OF

Crucibles,
Scorifiers,
Muffles,

— AND —

* FIRE BRICK *

— AGENTS FOR —

Baker & Adamson's Celebrated

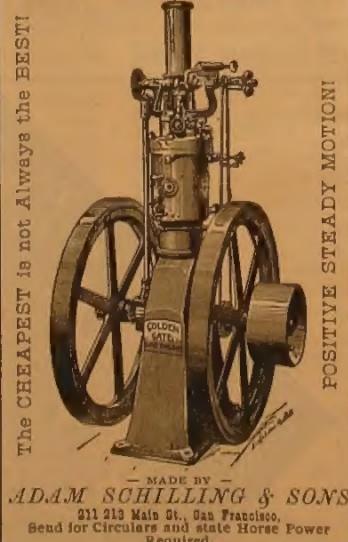
Acids and Chemicals

— DEALERS IN —

Glassware,
Porcelain
Goods, Etc.

— THE —
Standard Fire Brick Company,
Pueblo, Denver, Colo.

THE GOLDEN GATE Gas or Gasoline Engine Mining Hoists A Specialty



THOUSANDS Now in Use Over the World

TRUAx PATENT IMPROVED

Automatic Ore Cars.

THE ARE THE BEST AND CHEAPEST.

Truax M'fg Co.



DENVER, COLORADO.

The Only Exclusive Ore Car Manufacture in America.

Send for Catalogue, or call on your dealer for Truax Cars.

Pat. Jan. 5, '92, Aug. 27, '95.

Positive Steady Motion!

Don't send assays away from home

I can make them and guaran-
tee the results

E. E. FORD,

Assay Office and
Chemical Laboratory

PHOENIX, ARIZONA

FERDINAND McCANN

ASSAYERS AND CHEMISTS.

Heckelmann & McCann + + Bullion Dealers

Cash paid for all kinds of Gold, Silver and Ores. All assays
and Chemical Analysis at Mexican Silver Rates, 50
per cent. Less than American Price.

PUEBLO DE SAN FRANCISCO, NO. 6

CITY OF MEXICO

THE S. S. MACHINERY CO.

Buy, Sell and Trade in All Kinds of SECOND-HAND
Mining and Wood Working Machinery.

Correspondence solicited.

Office: 1559 Lawrence
Works: Sixth and Market

DENVER, COLORADO

TELEPHONE Office, 120
Works, 1234

Mexican, American and Foreign Patents, TRADEMARKS, ETC.

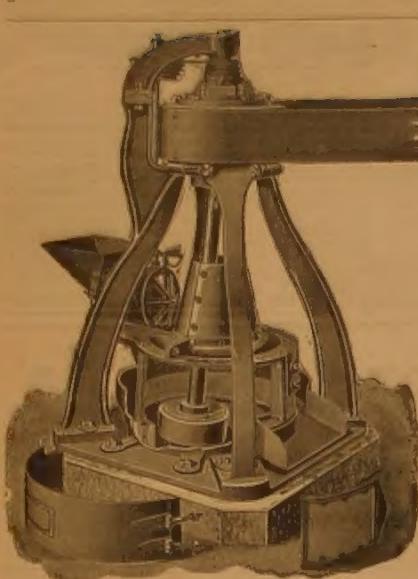
Reports on Mining and Other Properties.

Proprietors of Weekly Anglo-American, a first-class Advertising Medium.
Established 8 Years.

C. H. M. y Agramonte,

P. O. Box 388. Cable Address, "Agra".

CITY OF MEXICO



THE GRIFFIN MILL

The only Perfect Pulverizer Working both Wet or Dry Process

NO JOURNALS IN PULVERIZING CHAMBER.

Delivers a finished product. Will pulverize 1 to 2 tons per hour on Portland Cement, Quartz or ores depending on hardness of material and firmness of product.

Manufactured and Sold by —

Bradley Pulverizer Co.,

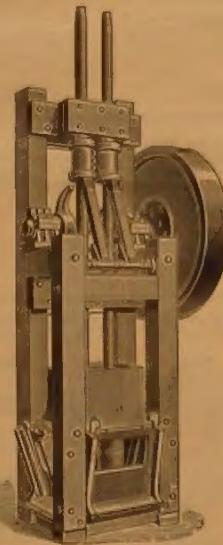
93 STATE STREET,
Boston, Mass.

JEFFREY

Roller, Steel and Special Chains
FOR
**ELEVATING
AND CONVEYING
MACHINERY**.
FOR HANDLING MATERIAL OF ALL KINDS.
**POWER TRANSMISSION
MACHINERY.**
COAL MINING MACHINERY.
Wire Cable Conveyors.
For long and short distance conveying.

THE JEFFREY MFG. CO.
Columbus, Ohio.

614 EQUITABLE BLDG.
DENVER, COLOR.
Send for Catalogue.

"HENDY" IMPROVED

Triple Discharge Two-Stamp
→ MILL ←

Capacity six to ten tons per day
PRICE, \$450.00

JOSHUA HENDY MACHINE WORKS
38 to 44 Fremont St., San Francisco, Cal.

LAMBERT
Gas, Gasoline and
Distillate Engines

TANKS, PIPE
and
WATER
SUPPLY
GOODS



Call on or Address,

S. J. SMITH,

230 East Fourth Street, LOS ANGELES, CAL.

Assayers' Miners' and Chemists' Supplies

Crucibles, Muffles, Furnaces, etc.

C. P. Cyanide Potash, (98-99 ^{per cent.})

Dioxide Sodium, Zinc Shavings, Borax Glass, C.P. Test Lead

Gasoline Tanks

AND EVERYTHING REQUIRED BY

Assayers, Miners and Chemists

Write for a copy of our.....

NEW ILLUSTRATED CATALOG

F. W. BRAUN & CO.,

401 to 407 N. Main St.,
Los Angeles, Cal.

EAGAR & CO.

Assay, Ollier and Sampling Works.

Assaying, Mill Tests, Cyanide Tests, Etc. Special Attention to work sent by Mail.
No. 10 Stevenson Street, San Francisco, Cal.

Chas. P. Grimwood,
Mining Engineer AND Metallurgist
Laboratory, 214 Pine Street, SAN FRANCISCO, CAL.

WM. H. HOEGEE

Oiled Clothing, Awnings, Tents, Sails, Tarpaulins, Flags, Banners, and Camp Furniture. Tents and Canvas Floors for Rent. Jobber of Cotton Duck, Etc.

136 S. Main Street, LOS ANGELES, CAL.



The Harrington & King Perforating Co.,

217 N. UNION ST., CHICAGO ILL., U. S. A. EASTERN OFFICE 204 PEARL ST., NEW YORK

**THE
Mining & Metallurgical
+ JOURNAL +**

ENCLERED AT THE POST OFFICE AS LETTER RUELS, CALIFORNIA,
AS SECOND CLASS MAIL MATTER.

VOL. XVIII. OCTOBER 15 NO. 2

F. W. EDELSTEN, Editor.

JOHN STEWART,
Special Contributor.

ULRICH KNOCH, Publisher

OFFICE, Stimson Block, Los Angeles, Cal.

SUBSCRIPTION PRICE:

For United States, Mexico and Canada.....	\$2.50 per annum
" " "	1.25 six months
All other countries in the postal union.....	3.50 per annum

1.75 six months

ISSUED SEMI-MONTHLY

SPECIAL REPRESENTATIVES:
The Journal is kept on file at the following places where contracts for advertising can be made:
San Francisco, Cal.—E. C. Dake, 64 and 65 Merchants Exchange.
Salt Lake, Utah.—Art Advertising Supply Co., 60 West and South Street.
Denver, Colorado—Ed. P. Eppich & Co., 47 Bank Building.
Kansas City and St. Louis, Mo.—C. M. Venzey, 430 Nelson Blvd., Kansas City, Mo.
Chicago, Ill.—B. Sprague, 50 Dearborn Street.
New York City—Wm. Edelsten, Jr., 166 Broadway.
City of Mexico, Mexico—O. H. M. Aguirre, 17 Cinco De Mayo.

ADVERTISING RATES FURNISHED ON APPLICATION.

RECORDING PROGRESS IN MINES.

The mineral wealth of a State is one of the nation's assets, and is worthy of protection and supervision with regard to its use by our successors in years to come. In every mining county there are to be found one or more abandoned mines, and in many cases several mines in a mining district. It matters not from what cause the mine has been closed but trade conditions change or ownership is vested in others than those last operating it and it is desired to reopen the long closed mine. The former manager, foreman and miners are gone from the district and there are no plans to tell how the workings are. In fact, there is a shaft in the ground and the new manager, owner, or the employees have no guide to aid them in the work of entering the now dangerous and unknown workings. They experience much difficulty and run great risks to life in the dangerous operation of entering the old workings. With a plan of the former workings in hand the operation is made more easy and safe, and it is the duty of every mine manager worthy of the name to leave such a record of his work so that his successors may be able to follow his work in years to come. Another case may be mentioned where a fall or cave-in has occurred in a mine and years afterwards under different ownership and management and different trade conditions it is desired to reopen the workings cut off by the fall or caved in ground, but there being no plan of that part of the mine great difficulty and accidents with loss of life are occasioned, where if a plan had been available the operation would have been made less expensive and possibly accident and loss of life avoided. For these and other good reasons it ought to be made compulsory on every prospector, mine owner or manager to place on record each year a correct plan and statement of the mining work done and

timber put in each prospect and mine in the State and deposit for record and safe keeping a copy of such plan and statement with the Recorder of the county and also a similar copy with the State Mining Bureau. Our plans of surface properties are carefully recorded and preserved, but any record of the underground operations in almost all of the States is a matter which is totally neglected. It is against the interests of the whole country to neglect such an important duty as recording the progress in mining development underground. It is a duty we owe to posterity to leave a record of our underground workings for their protection and guidance in years to come. The mine owner who neglects this duty is guilty of a crime, as his carelessness may cause loss of life at a future time. The subject is one which our State Miners' Association can take in hand and obtain the necessary legislation to have the mine plans recorded and the plans of the yearly progress of all prospects and mines hereafter added to these and made a matter of record as before suggested.

Jim Davis, Golden Star and World Beater mines. They have let a number of contracts to chloriders, and all are doing well. Mr. Stottler's mine, on Mineral Hill, is turning out very rich rock. Mr. Cooper has shipped considerable high grade ore from his mine at Stone Corral. A new strike has just been made by Mills and Vollmer at the head of North Park. The gold stands out like peas on the ore. Garrison and Coulter are taking out good ore in North Park. The property in Taber Canyon bounded by F. B. Pheby and Donahan has turned out well and shows a big ledge of good ore at a depth of 145 feet. Considerable No. 1 gold ore is being mined in old Panamint, where years ago they all thought nothing but silver existed. Mr. Martin has just completed a new five-stamp mill at P. O. Springs. Montgomery's five-foot Bryan mill is running steadily in Pleasant Canyon. The five-stamp mill of Mr. Anthony will soon start up. The same has been tied up quite a while on account of lawsuits. Mr. Cooper's two-stamp mill at Stone Corral is running quite steadily. We are having some rain, and the Indians are now gathering pinon nuts, which are very plentiful this year.

"MINER."

TUOLUMNE MINES.

East Belt.

THE RIVERSIDE,
on South Fork of Stanislaus river, have just completed their new 10-stamp water power mill.

THE CONFIDENCE

struck some old-time rich rock the past week. The general average of the ore milled is exceedingly good. The owners are well satisfied with the output.

THE JUNCTION MINE
continues to show rich ore.

THE BLACK OAK.

The new cyanide plant gives great satisfaction. The mine looks as well as ever. This is one of the most valuable mines in the state. The monthly output is very large.

THE GOLD BUG
has erected a 10 horse power hoisting engine, sinking.

THE DRAPER MINE
is sinking a winze on the 300-foot level. The run shows heavy gold, although yet small.

THE ABONA MINE.

Surveyor Hopper has been making surveys the past week, determining boundaries of mine and mill site, also underground works. The vein is large, and may be considered high grade, worth \$14 per ton. Sulphurets are very rich. Main shaft sunk 150 feet; good rock in sight. Work is suspended, as owners are erecting a new hoist. The new 10-stamp mill is shut down, owing to lack of water for power, this being the off season. A large number of other mines are temporarily shut down from same cause—no water.

GAYNERE MINE.

Shaft sunk 300 feet; large ore body. Grading for a 20-stamp mill is in progress; mill will be running on rock in December next; ore dumps are piled up, awaiting mill.

THE PATTERSON MINE.

This old and heavy gold producer is about to be resuscitated; a 40-stamp mill is to replace the old 20; 25 men are employed. This shows confidence—that the owners have faith

CORRESPONDENCE

CALIFORNIA.

BALLARAT, Oct. 3, 1897.

All is activity in this part of the mining country. Numerous rich strikes have been made lately, none very large, but rich. Mr. King of Ballarat has lately struck a four-inch vein, the ore being rich enough to sit and pound out wages in a mortar. J. Dover and sons are taking out fabulously rich rock in the Gold Note group, some ore going \$50 per sack. R. T. Nevis became disgusted with camp and started out, going across a saddle in the mountains between Pleasant and Happy Canyon; he found a rich ledge, small, but big wages, and is now working the same. The Montgomery's are milling good rock from the

that a new mine will be found. Shaft was sunk nearly 800 feet; large ore bodies, low-grade rock.

THE GOLDEN STAR
is running two tunnels on good ore.

THE ALAMEDA
struck rich ore at the 500-foot level, showing free gold all through the rock; vein large.

THE RAPPAHANNOCK.

Rich rock came to grass last week. The find will undoubtedly place this mine on the top list of gold producers in a very short time. This strike was made at the 600-foot level.

The majority of mines are still hung up—i. e., those that depend on water for power. Large retaining reservoirs are being built by the Tuolumne Water Company, so that in another year there will be no scarcity of nature's power. All the mines are guaranteed a full supply all the year round; besides, there will be several large electrical power plants finished this winter, so that mine owners desiring that power can be accommodated with all the power and light needed.

Fifty thousand dollars has just been taken out of the Lewis claim, Bald mountain. It is expected fully five thousand more will be extracted before the pocket will be exhausted, as the gold in sight warrants that statement. This is from the pocket belt.

ARGUS.

ISABELLA, CALIF., Oct. 6, '97.

EDITOR JOURNAL:—Noticing an article in your issue of 15th ult., in regard to Mr. Porter's new method of amalgamating, by the electro-chlorination process, reminds me that Erskine Creek, a short distance south of this place, was the scene of his first experiments in that line. He was baffled in his efforts to use the ordinary cyanide solution, on account of the refractory slimes sometimes encountered in this region; being an untiring student, he turned to electricity.

Mr. Porter has now returned to the scene of his early discomfiture; and I understand he is making a complete success in extracting the bullion from the ores which defied his former treatment. This success means more than the working of a single mine.

Yesterday, I saw Welch & Gilliam laboring with a certain class of their ores which, while it will assay several hundred dollars to the ton, will yield but a very trifling percentage of its assay value to any ordinary milling process; and these gentlemen have come to think that smelting offers the only promising solution in treating their heavy sulphurets. The mine is rich in both gold and silver, and Porter's process may yet add hundreds of thousands to its value.

I understand that the Russian Bear mine at Glen Olive, also south of this place, is at present yielding ore of extraordinary riches; but the express company having withdrawn their service from this route, in retaliation for the robbery of a year ago, men resort to all kinds of expedients to get their bullion to market, and great difficulty is offered in tracing the output of the mines.

The Pioneer mine may be expected to eclipse its previous record.

As a rule, private mining enterprises in this section are meeting with a high percentage of success, while stock companies, as a rule, prove to be either frauds or failures. This seems to be the history of forty-five years of mining here as a rule.

STEPHEN BARTON.

MEXICO.

CIUDAD DE MEXICO, Oct. 6, '97.

EDITOR JOURNAL:—One of the most important mining deals, and probably the largest that has ever been attempted in Mexico, is about to be consummated in the transfer of the extensive copper deposits, known as the Inguruan Copper Mines, to the Rothschild syndicate. The deal involves not only the purchase of these mines, at the enormous sum of \$6,000,000 in gold, but the subsequent construction of a railroad from the mines to the Pacific Coast, a distance of 240 kilometers, at a cost of upwards of eight million dollars, as well as the erection of immense reduction works to treat the vast output that these properties will yield.

These mines are located in the State of Michoacan, whose copper deposits have long been recognized as the largest in the Republic.

The Inguruan mines comprise a mineral extension of 2000 mining claims, with a copper deposit 500 feet in width extending along the entire length of these claims. A prominent French mining expert who reported on these deposits estimated twenty million tons of copper ore in sight that will average 4 per cent copper.

Mr. Carlos Eisenmann, of this city, who is the main promoter of this immense deal, and who sold the famous Boleo copper mines in the northern part of the Republic to the same syndicate, is now at the mines with a corps of mining experts and civil engineers, who are making a thorough and final examination of the properties, as well as a preliminary survey of the projected railroad.

PUENTE.

Miscellaneous Mining News.

ARIZONA

Mr. George T. Hoyt of this city is bobbing about Cochise county, Arizona, backed up, it is said, by a number of local capitalists who think they have several good things thereabouts. He has recently bonded four mines in the Huachuca mountains that are described as excellent prospects, with a good future. The claims are contiguous, being located near the Post Canyon, where there has been considerable activity for some months past. The claims and owners are: Mountain Dew, owned by John Burke and L. Scranton, price \$10,000; Excelsior, owned by John Burke and J. J. Poe, price \$10,000; Miracle, owned by Jerry Sheehy and Patrick McCarty, price \$10,000; Klondyke, owned by John Poe and Robert Downey, price \$10,000.

CALIFORNIA.

KERN COUNTY.

Steve and Robert Price and J. W. Kelly have bought the combination, which is an extension of the Meteor, paying \$2,000 spot cash.

The Little Butte has established a level at the depth of 385 feet, and is now drifting both ways in a vein of good ore. It is expected that the twenty-five horse power gasoline engine will be here within the next two weeks.

A trip up to the Rand group showed much activity; men are working at all points taking out ore and doing development work,

and teams loading ore to take to the mills at Garlock. The old hill seems almost a solid body of ore, much of which is high grade and all of which is easy to mine.

The Minnehaba and Philadelphia are moving along in their accustomed grooves and taking out good ore.

The machinery for the Johannesburg stamp mill is at Kramer and will soon be on the ground. The grading is completed and the work of erecting a large tank is now going on. It is hoped to have the stamps dropping within the next thirty days, though unforeseen delays may slightly prolong the time.

At the dry concentrator all interested parties are smiling and good natured, as well they may be. The dry concentrator is an unqualified success in every way. It comes as near saving everything as anything yet invented in either wet or dry process. If there is gold in the rock, be it ever so small, the little wizard-like machines will find and produce for the use of mankind. It has solved the vexatious problem of the dry reduction, and made the desert mine, heretofore worthless, a possible bonanza.—*Randsburg Miner.*

SAN BERNARDINO COUNTY.

G. H. Harn has purchased the entire interest of T. B. Lyon in Virginia Dale, and has also bonded the O. K. and Bob Ingorsol mines. These properties will commence to work at once, and will erect a mill as soon as he can get it here.—*Free Press.*

SAN DIEGO COUNTY.

The Mountain View Mining Company sent out from San Diego a big load of men, tools and provisions, on the 13th inst., to its property in the Julian district. Work is to be vigorously prosecuted under the superintendence of C. L. Hubbs. The first work will be the taking out of a "mill run" of high grade ore to be treated at the Owens mill at Julian, and immediately following permanent development will have precedence.

On the 16th of the present month several men will leave San Diego to go out and develop the property of the Laguna Mining Company in the Laguna mountains, a lot of "treasury" stock having been sold to provide for the purpose.

Report comes by letter that ruby and horn silver has been struck in the Alpine mine in the Laguna mountains. It has been known that some portions of the vein or ledge were rich in silver and lead.

The famous Bay Horse mine, which is represented in this city, seems to have some annoying litigation ahead of it, says the *Express*. Captain Polhamus of Yuma this week came in to that town from the Mesquite district, where the mine is located, and stated that the property was claimed by him, in that on the 27th of February, 1896, he had filed two claims to the exact territory now worked by the Bay Horse people and had recorded them in San Diego. He claims that he had complied with all of the provisions of the law, and that he has proof and to spare that he made the locations as claimed. He has gone to San Diego to perfect his claim to what is considered one of the most wonderful mining districts in the West, and intends to force the issue.

C. W. Witham & Co. have located some new copper claims joining the old Encinitas copper mines, and have some twenty teams at

work hauling material from San Diego for the purpose of constructing a dam some sixty feet high across a gulch to form a reservoir of sufficient capacity to furnish them with all the water necessary to carry out their scheme. They are trying to purchase about 200 acres of mineral land of the Encinitas grant. They intend to put in a smelter, and have been offered fifteen acres of land by Mr. Reseck in a suitable place to be used for that purpose. Quite a number of loads of cement, lumber and other material for the dam are already on the grounds.

COLORADO.

The San Juan Mining and Development Co., the properties of which are located in the Animas mining district, near Silverton, in San Juan county, Colo., and whose main office is in San Diego, Cal., where the president of the company, Mr. C. L. Warfield, resides, includes a half dozen or more valuable claims on which \$12,000 have been expended in development. The assays of the surface rock give a total of gold, silver and lead of \$49.05 per ton, and still no returns of copper are made.

Another increase has been made in the shipment of manganese iron ore from Leadville, Colo., to the Illinois steel works, and they now amount to nearly 150 tons daily. It is stated by representatives of the steel company that still further increases will be made.

A discovery has been made of nickel in the Cepango district, on the Little South Fork of the Poudre river, in Colorado.

IDAHO.

John W. Eddy, of Helena, was a visitor at Gibbonsville last week, and was looking after his mining interests at that point. The gentleman is one of the owners of the Twin Brothers property, and it is thought that another company will be formed to work several of the valuable properties in the vicinity that are now lying idle.

An important mining deal was consummated at Salmon City last week, when the entire plant and mill of the Italian Gold Mining and Milling Company was transferred from the present owners to William E. Hubbard of Salt Lake City, Utah, the consideration being \$50,000. The mine has been under bond for several months to R. W. McBride, to whom the credit of making the sale is due.

P. L. Gaarden, who, in company with Mr. Gailey of Pittsburgh, has an option on the Golden Rule mine, joining the Placer Basin, near Weiser, has struck the ledge he was crosscutting for. It was so small where cut that the miners nearly missed it, but on drifting they proved it to be the edge of what promises to be a very rich chute of ore. Chunks of quartz were taken out in the first few feet that showed lots of free gold and sulphur.

Walter Paxton, who has been at work in Charlotte Gulch, near Grimes Pass, says John Myer's little three-stamp mill, recently put up on a mine owned by Mr. Myer, Nels Bottcher, the Bunch boys and Naz Carpenter, has been crushing good ore. After a three weeks' run something over \$800 was cleaned up. Considering the size of the mill, the clean up was extra good. The stamps weigh only 150 pounds each.

MONTANA.

(Extracts from Western Mining World.)

H. W. Shearman and others have incorporated the South Boulder Mining Company, with a capital stock of \$10,000.

A rich discovery of copper and gold is reported as having been made in Capt. Lyons' mine at Rock Creek, three miles above Quigley.

At the Bob Ingersol mine, up Mill Creek, near Sheridan, the new hoist is now being placed, and every preparation made for active and extensive development.

It is reported here that the parties operating the cable-way placer machine on German bar have taken up their bond on Phil Conrey's ranch, at the mouth of Alder Gulch, preparatory to very extensive operations next year.

The Murray district, which is tributary to the Castle road, is beginning to ship a little copper ore. There are good copper leads in the district, and when the mines are developed, it is expected that a large amount of ore will be shipped from there.

It is reported on good authority that Geo. Hammond has made a rich strike between Georgia and Nugget, in Madison county. A representative of the smelter company was there last week, but no satisfactory deal could be consummated for the ore.

Ore continues to come out of the Little Nell, near Lump City. Dr. Head says the upper levels of the mine are being stopped with profit. The force of men is small, but a car-load of high grade ore is going to the East Helena smelter every fortnight.

W. H. Albright, of Great Falls, is arranging for the development of his mining property near Montana City. Mr. Albright has the contract for furnishing the Great Falls smelters with lime, and delivers about 200 tons per day to the Boston and Montana and the silver smelter.

Senator Hoffman's mine, near Iron Rod, Madison county, is getting to be quite a producer, and the ore for the present is being reduced at the Iron Rod mill. As a result of 15 days, Mr. Hoffman brought in about \$5,000 of the yellow metal the other day, and there appears to be lots more where that came from.

NEVADA.

Smelter Blows In.

On the 28th of September, the furnace of the Boston-Nevada Copper Mining Company's smelter was blown in at Yerington, Lyon County. Everything went off like clock-work; not a hitch, not a change in any part of the work. H. A. Keller, a prominent metallurgical and mining engineer of San Francisco, and a man who has had over fifteen years' experience in Leadville and Butte, complimented O. B. Hardy, under whose supervision this smelter was erected, that no change of any kind was necessary at the test. Mr. Keller says that it is very seldom that new works of this kind are started up without a number of changes being necessary before the plant can be successfully operated, and that the successful operation of this smelter is due to the knowledge and management of Mr. Hardy.

The smelter is now running steadily and turning out over eight tons of matte per day.

This will keep teams on the road continuously to Wabuska, where the matte is to be hauled and shipped east.

The plant is a large one, and so constructed that another furnace can be added with but very little expense. If the expectations of the management are realized, another stack will be put up in the early spring. A Whitman, of Massachusetts, has been installed as assistant superintendent.

Capt. John Fagin last week sold a three-quarter interest in the Ruby copper mine, near Lunning, to Mr. O. B. Hardy of Mason Valley. The consideration named in the deed is \$2,000.

NEW MEXICO.

Output of Hillsboro gold mines for the week ending Thursday, Oct. 7th, 1897, as reported for *The Advocate*:

	Tons
Wicks	50
Butler	5
Richmond	15
Happy Jack	10
Snake Group	55
Opportunity	10
Sherman	5
Prosper	5
Eighty-five	5
Rex (silver-lead)	5
Total	165

Total output since Jan. 1, 1897.—7,239.

The Llewellyn Cyanide Company are employing all the men they can get to work on their leased mines and in construction of the works. A large stock of supplies and provisions has been laid in and is arriving at the headquarters store, on Dutch gulch. Machinery is beginning to arrive and there is every indication that the Company will make rapid development of the Animas Peak district, Hillsboro.

Some samples were recently taken out of the Rebel Chief No. 2 at Elizabethtown in Colfax county that assayed better than \$6,000 to the ton. This, of course, does not represent the ore, but they have considerable ore that will go over \$100 to the ton. Mr. Pat Lynch says the rock bears a great resemblance to Red Bandana ore. Mr. Manning has 28 men at work now and confidently expects to have 100 men at work ere long.

Ore hauling from the Lone Star mine to the mill at Bland has been steady all week. The mill is at present treating this ore and good results are expected. The rich ore body in the Lone Star mine still holds out and the force at work there continues producing large quantities of it.

We are in receipt of a copy of the *Northwest Mining Mirror*, a publication recently launched at Tacoma, Washington, which bids fair to rival any other mining journal in the State of Washington. There are twelve pages in all, and it contains a good list of advertisers, accompanied by a creditable selection of mining notes. We wish the new enterprise all the success attainable, and extend our hearty co-operation in every way possible.



VICTORY MINE, GLENDALE, DOUGLAS COUNTY, OREGON

OREGON.

Some Southern Oregon Mines.

There has been, and still is, less mining in Douglas county than in either Josephine or Jackson counties, says the midsummer special edition of the *Oregon Mining Journal*; the county is, however, within the Southern Oregon mineral belt, and the formations are similar to those existing in the other counties named. In early days, considerable gold was obtained in the South Umpqua and Cow Creeks and their tributaries, and both of these streams are still the seat of considerable mining operations.

On Steamboat Creek, in the northwestern part of the county, is the farthest point north where gravel has been worked for gold. This creek is an affluent of the North Umpqua. On all other tributaries of the North Umpqua gold can be found. However, but little mining has been done in this section. Some prospecting has been done there, and some good quartz has been found. The district also contains some copper found in serpentine.

The most noted tributary of the Umpqua is Cow Creek. The gravel of this creek has been worked for over thirty years. The placers are still extensive, and some noted bodies of deep gravel are found. On Tennessee Gulch, some twenty miles up the creek, some good mining ground is also found. Just above the mouth of Tennessee Gulch is the Union quartz mine, which has been extensively worked, producing some very rich ore, treated in an arrastra. The vein is small, however. It was in this vicinity that the "Starve Out Strike," otherwise known as the Green Mountain mine, was discovered some years ago, and is a well-defined ledge, some six feet in width. Another discovery in this creek was an iron mine. There is also found considerable copper.

But the principal enterprise on Cow Creek is the Victory mine, near Glendale, the property of the A. B. C. Company, a corporation whose chief stockholders are residents of Chicago. The president of the company is John

Addison. This property until lately was operated by the Victory Placer Mining Company, of which Col. Taylor was manager and promoter. There are several hundred acres of rich gravel, but the difficulty has heretofore been the insufficiency of water.

To supply this, Col. Taylor undertook to erect large pumps; but, before he could demonstrate his ability to mine profitably by this means, the company became involved in financial difficulties, with the result that the property was sold under a judicial decree, and purchased by Mr. Addison and his associates. To increase the water supply, the new company is now constructing a system of ditches, 25 miles in extent, which will tap several creeks putting into Cow Creek, and which, it is claimed, will furnish ample water for the greater part of the year.

One of the most noted districts in Southern Oregon, and one which is the oldest in the country, is Galice Creek District. It lies about twenty-five miles west of Grant's Pass, in Josephine county, and gets its supplies from the above city. Merlin is the nearest point on the railroad. From there a wagon road runs for six miles to Crow's Ranch, where a trail covers the balance of the distance; but steps have been taken to build a wagon road in lieu of this old trail.

The largest, most prominent, and best-equipped hydraulic mines here are those of Judson Bent and Adin Alexander, both of whom reside in Southern California.

The Alexander and Bent mines are located near the junction of Galice Creek and Rogue River. They consist of 757.89 acres of gold-bearing gravel, covered by United States patent. The ground covers a channel four miles in length, and is divided by the right-hand fork of Galice Creek into two separate mines, each having an independent water supply. The upper property, which is at the head of the channel, is supplied with water by a ditch seven miles in length, from the left fork of Galice Creek. The lower property is supplied by an eight-mile ditch, from the right fork of the creek, and by a $\frac{3}{4}$ mile ditch from Rock Creek.

The lower property is fitted up with all necessary buildings for mining, also a saw mill and fine blacksmith shop. Two giants are run day and night throughout the mining season, that is from seven to nine months in the year.

Just north of Alexander and Bent's mines, in the same old channel, high up above the Rogue River is the Rocky Gulch mine, which is owned and operated by an incorporated company, the chief stockholders of which are L. L. Jewell, J. W. Sherer and S. S. Prentiss, all residents of Grant's Pass. The ground cover 140 acres, and includes five distinct channels, lying along the mountain side, one above the other. This ground has been worked off and on for the past 20 years, with varying success. The present owners have done much to equip the property: a ditch several miles in extent has been built, and a large reservoir constructed.

The other mines in the district are Elwell & Gass, who have only recently partially equipped their property on Stratton Creek, and a few others.

The hydraulic mine of Eugene Merrill, an illustration of which we print herewith, is equipped with one giant, and has plenty of water to operate it nearly the whole year round. The gravel banks are not as deep as the Alexander and Bent mines, but it is stated that the gold is more evenly distributed. They have excellent water rights and possess good dump facilities.

The *San Bernardino Free Press* has very kindly placed us on their exchange list. The *Free Press* is a bright, newsy, little weekly, and a strong advocate of the free and unlimited coinage of silver at 16 to 1. It contains considerable first class mining notes.



EUGENE MERRILL MINE, GALICE CREEK, JOSEPHINE COUNTY, OREGON

UTAH

The Mercur Mercury, in its weekly mining review, says:

This week, in the Rosa, on the hillside, facing the Chloride Point, the shaft broke into an ore body running from 60 to 65 per cent. lead and from 150 to 300 ounces silver. This strike was made at a depth of 80 feet, and at the time our information was obtained it was not known whether the ore was in a vein or occurred in a pocket. The Rosa lies between the C. L. C. and Columbia lodes, and is owned by Frailey, Parks and Lambert.

Rumors of an October dividend at the Sacramento are in the air. It is known that the mine and mill are operating very successfully. The Sacramento gets bigger every day, and those who have been holding the stock and backing their faith with their money, are bound to be amply rewarded.

WASHINGTON.

Hydro Smelter at Work.

The works of the Hydro Smelting and Refining Company, at Lake View, were put into operation a few weeks ago. Many people were present to witness a practical demonstration of the merits of the new invention, which combine the requirement of only a few men for operation, cheapness of production of necessary heat, and great saving in the cost of construction, compared with the old method of smelting and refining.

Although the works have a capacity for 80 tons of ore a day, only half a dozen men are necessary to operate with ease, and the entire plant can be manipulated from one stand by one man. It is the hydro-carbon process, regulated by valves, so that the operator can get any temperature he desires at will.

The company is using mixed ores at present, some of which are very refractory.

The plant is designed to smelt precious metals, wrought, pig and Hemetite iron, and can be adapted to matte furnaces. Some very creditable specimens of wrought and pig iron and steel have been produced by this process, and can be seen at the office of the company. Also some fine specimens of bar bullion, weighing 118 pounds each, which have been produced.

The merits of the invention are utility and economy in operation, and cheapness of construction, the latter permitting the erection of the smelter at the mine, thereby saving the cost of transportation of ore.

The company will run the Lake View smelter commercially, and build plants throughout the western states through their agents. J. R. Bradley, a gentleman of wide experience in mining matters, has been made general agent, and will enter upon his duties at once.

It appears that the Hydro Company has rosy prospects for a large and extensive business in the near future.—*Northwest Mining Mirror.*

In the Brimstone mine, located near Nelson, there are stringers of tellurium, from which assays running as high as \$2,600 have been obtained.

The Golden Fleece Mining Company has begun operations on their placer claims, the Third Chance and Last Chance, near the Republic, and are taking out coarse gold in paying quantities.

The owners of the Belle of Waneta group on Fish Creek, near boundary, are arranging to work and ship ore at an early date. For date. For the present they will ship only that of above 45 per cent lead, 60 ounces silver, 6 per cent copper and about \$5 in gold to the ton.

The Wells Fargo Mining Company has organized, and will start work on the Wells Fargo mine, located on Huckleberry range in the Springdale district. Considerable work has been done on this claim, and the ore is lead carbonates, assaying as high as 75 per cent lead and 30 ounces in silver.

A force of men was put to work this week on the Gentle Annie, owned by the Antle Gold and Silver Mining Company. A cabin has been built and arrangements made to work this property all winter. This is the result of a visit of the company's president, J. W. Douglas, a month ago. Mr. Douglas was much pleased with the showing made and the work will be continued on a much larger scale.

The Copper-Gold Mining Company is now one of the most substantial companies operating on the Colville Indian Reservation. Mr. Baker has returned from the east, where he floated all the stock deemed necessary for the development of the mine, it being 100,000 shares. For the present, there is no more Copper-Gold stock on the market. The company's claims are the Ironsides and Black Bear, located on Toulou Creek, about a mile and a half from the Bossburg and Grand Forks stage road, and less than eight miles from Bossburg. The original owners were John Ranahan, T. B. Mitchell and Chris Ness, and who are principal stockholders of the company, the former being the president and manager. Five assays, from a depth of about 20 feet and less, taken from the main ledge, went \$41.65, \$60.10, \$51, \$48 and \$26.65, making an average of \$45.48 to the ton, principally in gold. Work is now being prosecuted day and night on a tunnel, which will crosscut this ledge at a depth of about 250 feet, and at the present progress the main ore chute will be penetrated inside of 60 days. They are now in 45 feet and are working in heavily mineralized rock.

FOREIGN MINING NEWS

BRITISH COLUMBIA.

(Extracts from the B. C. Mining Record.)

A four-foot ledge of nickel ore has been found in the Trout Lake district, B. C., near Ferguson.

The huge bodies of low grade ore on Jervis Inlet are being noticed by capitalists. These mines are but seventy miles from Vancouver.

Of the Chanuc Mine Company's properties in Kootenay very good reports have been received. The Maple Leaf, situated on Wild Horse Creek, is showing up well, the lead having widened from three and a half to seven feet with good indications. On the Centaur, twenty-five miles from Golden, the outcrops assay from \$16.00 to \$34.00, and on the Book Rest and Golden Hope, at the head of Ice River, the lode, which is three and a half feet wide, assays from \$76.00 to \$194.00.

Members of the Golden Cache Company left for Lillooet last week to be present when the mill is put in operation.

Mr. J. R. Seymour, who visited the Lillooet and Fairview districts last month, gives a very glowing account of both camps. The Excelsior Mine adjoining the Golden Cache, is the talk of the camp. The tunnel was in 100 feet at the time of his visit, and assays taken at eighty-feet from the mouth ran \$79.00, \$40.00, \$32.00 and \$10.00.

There are many mining products produced in Cariboo. Near Quesnelle is found lignite, also on the tributaries of the Upper Horsefly and in a formation similar to that in which occurs the coals of Southern Alberta. (Medicine Hat and Lethbridge.) It is quite probable that where this lignite is found coal exists below.

On the divide between the Clearwater and Quesnelle water systems are huge bodies of galena, which are at present being exploited very quietly. South lie the Micha Mountains, well earning their name from the tremendous beds of mica which they hold. West and northwest are the mountains surrounding Horsefly, Quesnelle and Cariboo Lakes, extending to the Barkerville division in Snowshoe, Yank's Peak, Bula Mountain and Island Mountain, all containing quartz ledges well worth exploiting. At present only Snowshoe and Island Mountain are getting any attention, but they are all worthy of it.

Cariboo has hundreds of thousands of acres of promising but unexploited ground for placers, miles upon miles of quartz reefs, gave British Columbia her first list towards making her the choicest state in America.

Work on the Blue Jay is rapidly progressing, Mr. Latimer having taken a contract to drive a tunnel some hundred feet in length, and from the continued explosions heard in Vernon that gentleman must be in a hurry to complete his work.

The hundred-foot tunnel on the Denzy has been completed, and Mr. G. Stumps has taken a contract to drive sixty feet farther in, and splendid results are anticipated. The owner, Mr. Kempson, recently arrived at Vernon and expressed himself well satisfied with the appearance of the property.

The Morning Glory Mining Company are now hard at work putting in their stamp mill, which, after much delay, arrived in Vernon from Denver, Colorado, last week, and the owners have every hope of showing that they have not invested their capital for nothing.

Very encouraging reports are brought in to Vernon from the Silver Queen, one of the Silver Star claims, where work is being prosecuted by the energetic prospectors.

The old War Eagle Company will pay its last dividend in a few days. The War Eagle, it will be recalled, sold its mine to a Canadian syndicate and afterward disincorporated. Treasurer Lucas was at work last week calculating the value of the remaining assets, and said there would be about \$22,500 to be divided among the former shareholder. This would give a 4½ per cent dividend.

Since the mine was sold for \$700,000 it has paid a dividend of six cents a share, or \$30,000. There are 500,000 shares of the stock, so that when the final dividend has been paid the owners will have received a trifle more than \$1.50 a share as the proceeds of the sale. Prior to the sale the mine had paid \$187,500 in dividends. So, all told, the War Eagle Mine has returned its owners \$940,000. This, for an expenditure of about \$30,000, is not bad, being a little more than 31 for 1. But the original owners did better than that. The

original War Eagle Company owned the War Eagle, the Iron Mask, the Virginia and the Poorman. The big company was cut up into four companies and the stockholders in the original company received shares in each of the new companies equal in number to their holdings of original War Eagle stock. Thus the owner of 25,000 shares of War Eagle stock received in addition to these shares, 25,000 shares in the Iron Mask, 25,000 in the Virginia and 25,000 in the Poorman. At one time the Iron Mask sold briskly at about 75 cents, and some shares were sold as high as 85 cents. Virginia sold for 20, and Poorman for 12 to 14. So original owners who sold at these figures received more than \$2.50 per share for their original holding. Mining men just down from Rossland report that the War Eagle and the Iron Mask are showing up well under development. It is said the owners of the War Eagle intend to push development work for two years before trying to pay dividends, and that they expect then to enter upon a long period of dividend paying.

The No. 1 furnace of the Hall smelter at Nelson, which has been idle for a time, is to be converted into a lead furnace.

Col. Baker, minister of mines, has bonded a group of six claims on the south fork of St. Mary's river, East Kootenay. The bond for the payment of \$60,000 is in easy installments.

The Iron Cap mine, Kamloops, is now shipping, the ore assaying nine ounces in gold and 18 per cent copper. This is the property Patsy Clark bonded, sunk down on it 50 feet and then threw up his bond.

Although the Cariboo Mining, Milling and Smelting Company suffered a loss of \$12,000 in stolen bullion and legal expenses incurred in connection with the theft, and expended \$6,000 in new machinery, it has paid during the past year \$78,836.84 in dividends, and has \$21,297 in the treasury. To date the company has paid \$156,964.76 in dividends.

A shipment from the Athabasca mine, near Nelson last week, consisting of twenty-nine tons, gave a smelter return of \$97.70 per ton. Twenty seven men are now employed at the mine, and only a portion of the ore taken out is being shipped. The balance, which is free milling ore, is being put to one side for the mill, which will probably be erected this winter.

Sandon Notes.

It is reported that the Payne has struck a large body of ore in the lower tunnel.

The Last Chance struck ten inches of clean ore and two feet of carbonates in the No. 3 tunnel, when in 240 feet. A rich strike was made on the Hillside claim at White-water. In the incline shaft, being sunk on the vein, at a depth of ten feet, six inches of clean ore and carbonates and two feet of scattered concentrating ore was found on the foot-wall. The ledge, which is eighteen feet wide on the surface, is strong and well defined, and as the ore chute is widening with every foot of depth, great results are expected. The Hillside is one of a group of four claims belonging to the Hillside Silver Mining Company. E. C. Ward and Frank Fortin, who hold interests in the company, are in charge of the development work.

The *B. C. Mining Critic* says: The offer of Mr. W. H. Remington, of Seattle, to provide Vancouver with a smelter of 300 tons daily capacity, in return for a civic bonus of \$100,000, payable at the rate of \$1 a ton on output is, although the bonus asked is larger than at first expected based on the business lines of actual operations and pro rata. The offer is, therefore, well worth full consideration by the City Council. Perhaps it may induce a similar business-like proposal backed also by guarantees of solidity, from the Mr. J. H. Rothschild, of London, England, who has so long been promising great things in regard to smelter working in or near Vancouver. The Coast and Island mines stand in growing need of smelter provision in or about Burrard Inlet.

HONDURAS, C. A.

San Juancito is situated about seven leagues easterly from Tegucigalpa, the capital of Honduras, in a cluster of mountains which rise to an elevation of some 7,500 feet above the sea. The climate is fine, ranging in temperature from 50° to 85°, and with vegetation from palm to oak, while the fruits and vegetables include everything, from the tropic banana to the familiar 'high bush blackberry' of the New England States.

The Rosario mine is the largest enterprise of the kind in Central America. Its mills, and the habitations of its employees, constitute the village of San Juancito, which it owns root and branch, furnishing medical attendance, police, and even school teacher.

The mines of this company have been working for about 17 years. They are opened entirely by adits and tunnels on the vein. The two largest tunnels are each between 4000 and 5000 feet in length. There are at present nearly eight miles of tunnels, in all. The principal entrance to the mine is a little over a mile from, and 1200 feet above, the mill at San Juancito, with which it is connected by a wire rope tramway. An efficient telephone service connects the different departments and the works are lighted by electricity.

The ore carries both silver and gold. The mill has 35 stamps, and is equipped for pan amalgamation and vanner concentration, with roasting furnace for concentrates.

To this date the company has paid over \$800,000 in dividends, of which \$120,000 has been paid since Jan. 1, 1897.

Yours truly,
C. W. KEMPTON.

LOWER CALIFORNIA.

The Piedad Group Bonded.

The Piedad mine in the Jacalitos district, together with a number of adjacent properties, and known as the Piedad group, has been bonded to a Los Angeles company, of which ex-Governor Markham of California is a member. Mr. Louis F. Kwiatkowski, who has passed quite a portion of the past year on the Peninsula, is the representative of the company at Ensenada, and he and Mr. W. F. Schroeder of Los Angeles, who is also interested in the mines, were in Ensenada last week, preparing to commence developments.

Considerable work has been done on the Piedad mine in the past few years. The shaft is down 150 feet with quite extensive drifts and cross-cuts, and there is a five-stamp mill on the property. About a year ago there was an attempt at a sale with rather unsavory complications, since which time all work has

been suspended. It is only recently that this unfortunate tangle of affairs has been straightened out, and now that the mine has been secured by a company for the honest purpose of development, some decisive results may be anticipated in that district.

Besides the Piedad mine the company has acquired quite a number of promising prospects in the same vicinity, more or less developed, and Mr. Kwiatkowski states that work will be commenced immediately with a large force of men.—*Lower Californian*.

In the Buena Vista mine at Alamo, Joe Goyote, the owner, has struck a fine 2½-foot ledge at a depth of 65 feet. Many samples of this ore are full of free gold and the general average is in the neighborhood of \$100 per ton.

Work was commenced last week on the air compressor to run the Rand drills in the Aurora and Moctezuma mines, and as soon as the balance of the machinery arrives in Alamo these properties will start in on a large scale.

The St. David mill, under the superintendence of Mr. Saville, is running day and night, and the supply of ore in that mine seems to be unlimited. At the Aurora, one of Alamo's largest mines, they are still cross-cutting for the ledge on the 140-foot level. The indications are very favorable for them striking the pay-shoot in a short time. The other day they struck a fine body of quartz on the cross-cut on the 180-foot level on the Moctezuma mine. It prospects very fine and at the present writing they have not determined how wide the ledge is. They have gone in three feet, but have not yet struck the foot-wall.

Reports from the Viznaga mine are very encouraging; a four thousand-dollar gold brick was brought to this city the other day. The ledge is holding stronger than usual and the ore is getting richer all the time.

MEXICO

Yaqui Gold Fields.

The first of last week Capt. T. C. Cox, of California, returned from the Bonancito region, in the Yaqui country, where he went to examine the newly discovered placer fields, of which considerable mention has been made of late, but no accurate information has been forthcoming. The gentleman went to examine only the property included within a certain concession, and passed judgment on no other portion of the region visited; but he is profuse in praise of the property he inspected. He says that the ground is very rich and will pay handsomely to work. A concession covering about 150 acres of land, the very pick of the entire ground, had been secured, and Capt. Cox's mission was to examine that in the interest of a syndicate which will take advantage of the opportunity and work on an extensive scale. As soon as the treaty of peace between the Yaqui Indians and the Mexican government was signed at Ortiz, on May last, Mr. P. B. Chisem went immediately into the region, took his pick of the ground and secured the concession. During twenty-five years he had known of the value of the region, but never before could it be prospected. The Yaquis were an effectual obstacle.

Ever with an eye open for good investments, Messrs. Harlow & Gowan, learning that Mr. Chisem had succeeded in heading off

all competitors and had obtained absolute title from the Mexican government to the new El Dorado. Mr. Gowan of the firm immediately proceeded to Guaymas and succeeded in obtaining a bond on the property, the result of which is the forming of a powerful syndicate of capital to handle the proposition. They enlisted men of heavy capital residing in Phoenix, San Francisco and the east, and Capt. Cox, an eminent expert from California, was sent to examine and report.

"El Bonancito" is a rolling valley, about thirty-five by sixty miles in area, and the locality therein visited by Capt. Cox is only thirty-five miles from Ortiz station, on the Sonora railway. The road from the station is good, being almost level the entire distance, but one small canyon to pass through and only two or three low hills to overcome.

The formation is a decomposed granite, the gold is coarse and heavy, and all the water necessary for operation is easily procurable.

Capt. Cox states that in the region are many very valuable quartz ledges upon which

BURNETTIZING.

This process was proposed by Sir W. Burnett in 1838. It has been in constant use in Hanover since 1849 and later has been adopted as a standard method throughout Germany and Austria. It was introduced in the United States in 1850, but has been extensively used only within the past twenty years. This process, so far, is principally in use for the treatment of railroad ties, but there seems to be no reason why it should not be successfully used to prolong the life of timber for mining purposes.

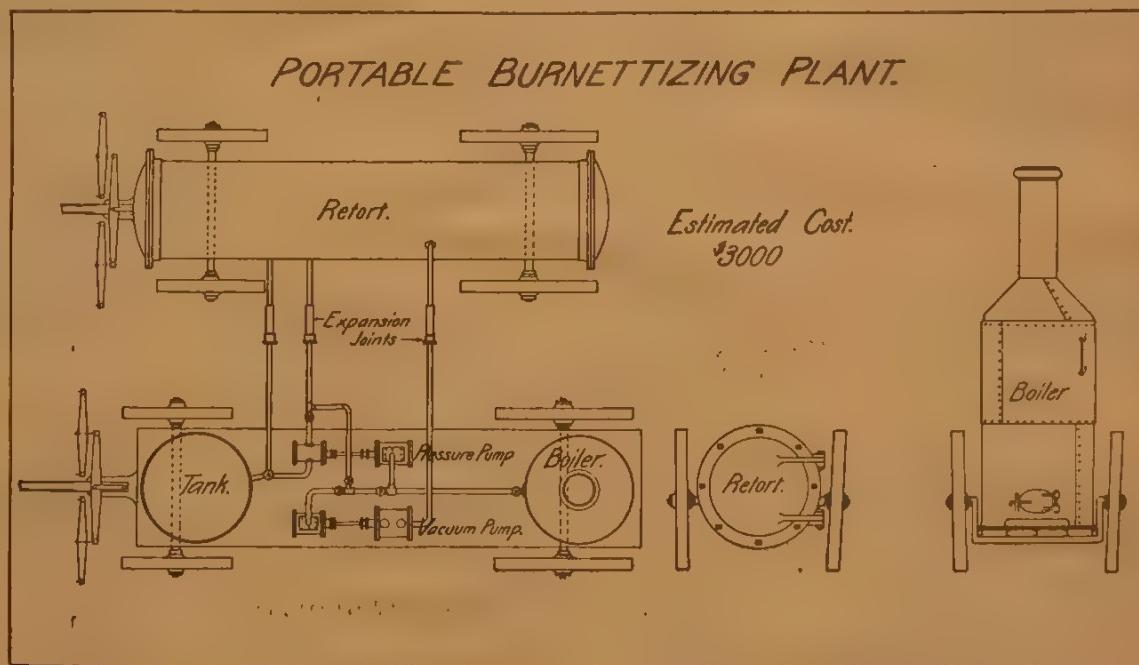
The process of Burnettizing is simple. The timber is dried by steam, and the antiseptic solution then forced in. The theory of the use of chloride of zinc is that this substance is both an antiseptic and a powerful coagulant of albumen.

Chloride of zinc is cheaply and easily made by simply immersing zinc in muriatic acid until the acid is saturated, leaving no free acid to attack the piping, etc. This salt is now largely manufactured, both in the East-

equal to one-half pound of water per cubic foot of timber. The retort is then filled with hot chloride solution, and the required quantity of solution forced into the timber by a pressure pump. The entire process with large retorts holding 18,000' B. M. of timber, usually requires a little less than seven hours' time.

This process renders timbers much less combustible, and is therefore valuable as a fire preventive. All soluble chlorides have a great affinity for moisture. They will cause substances impregnated with them to remain moist, and, therefore, much less inflammable than if untreated. Common salt (sodium chloride) has long been known as a fire preventive for timber.

The Société d'Encouragement de Paris about ten years ago awarded a prize of 2000 francs for a fire proofing solution to be applied to theatrical scenery, woodwork, etc. The principal effective ingredient of this solution was sal ammoniac (ammonium chloride).



some development work has been commenced. The ledges are wide and the ore is free milling gold rock, very rich.

H. T. Collins has returned to Mexico from Sydney, Australia, where he went three years ago in the capacity of a mining engineer. He has returned to take charge of the gold, copper and silver properties of the Chiapas Mining Company. He received word from the London owners to return to Mexico and relieve the parties now in charge of the property. As he has not seen the mines as yet, all he knows is that the mine works about six hundred men, and is reported to be good property that has been operated for five years.

Mr. W. A. Clark has placed an order with the Edward P. Allis Company, of Milwaukee, for a large compound condensing engine for the United Verde mine, at Jerome, Arizona; also an order for a blast furnace for the Butte Reduction Works, with the same company.

ern States and on this coast. Its cost is now about 4½ cents per pound in large quantities.

The apparatus for treatment is simple. It consists of one or more retorts, a boiler, a vacuum pump, a pressure pump, one or more storage tanks and suitable piping. For short timber a plant could easily be arranged to be hauled around on wheels like an ordinary wagon. If steam is otherwise available the boiler can be omitted. With such a plant having a retort say 3½' to 4' in diameter and 16' long, very effective work could be done in preserving timbers to be used in mines.

The process in detail consists of placing the timbers to be treated in a closed retort, introducing live steam at 30 pounds pressure, allowing the mixed sap and condensed water to drain off during this steaming until the liquid shows little or no resinous constituents. Vents are then opened and the steam blown off. A vacuum is then produced by a vacuum pump. This is continued until a condenser shows condensation at a rate per hour

Zinc chloride is extremely hygroscopic, much more so than either salt or sal ammoniac. The affinity for moisture is such that it will keep timber damp in the driest climate.

The net cost of burnettizing in large quantities is about \$3 per 1000' B. M. for treatment. The estimated cost of a portable burnettizing plant complete is \$3000.

A new use of aluminum has been discovered in the manufacture of reproducers for talking machines. The reproducer is the apparatus which holds the vibrating diaphragm of glass. Heretofore the recorders and reproducers of talking machines have been made, as a rule, of hard rubber. For hard rubber aluminum has been substituted with what is regarded as much success. It is claimed that the blasting, blaring or "chattering," as it is called in the trade, which is often noticeable in the performance of the talking machine, is almost completely absent when an aluminum reproducer is used.

GENERAL NEWS.

The Weber Gas and Gasoline Engine Co., of 434 S. W. Boulevard, Kansas City, Mo., reports the following recent sales in the mining trade of Weber engines:

Twenty H. P. Weber gasoline engine and pumping plant, to the Texas Gold Mining Co., of Buford, Ga.

Four Weber gasoline engines, including pumping and electric light plant to Squaw Creek mining district, near Phoenix, Arizona, for Mr. Biddle Reeves.

One double drum Weber geared gasoline hoisting engine, 40 h. p., and one single drum Weber gasoline hoisting engine, 10 h. p., to the Guggenheim Smelting Co., Mexico.

One 10 h. p. blowing engine, to Geo. C. Updegraff, Sargent, Col.

Two Weber gasoline heavy engines, to the M. A. Sebring Mining and Milling Co., at Benson, Ariz.

One 40 h. p. Weber gasoline engine, to L. C. Trent & Co., Salt Lake City, Utah.

Two complete placer mining plants, including two Weber gasoline engines, to W. E. Putnam, Nyssa, Oregon.

Two 40 H. B. Webber gasoline hoisting engines, single drum, geared, to the Consolidated Kansas City Smelting and Refining Co.

One 10 h. p. Weber gasoline engine (hoisting) single drum, geared, to the Gopher Gold Mining Co., of Chapparal, Arizona.

One 10 h. p. friction Weber gasoline hoisting engine, to J. T. McLaughlin, San Pedro, N. M.

Patents of Interest to Mining Men.

Messrs. Townsend Bros., of Los Angeles, furnish us with the following synopsis of patents issued Sept 28 and Oct. 5, '97. Complete copies can be obtained of the Commissioner of patents, at five cents each. (Stamps not accepted.)

PATENTS ISSUED SEPT. 28.

590,673.—Process of, and apparatus for, electrically treating ores. F. H. Soden, Chicago, Ill. Ore is purified preparatory to smelting, by subjecting it under confinement against the access of atmospheric air to the action of superheated air and subjecting it to the action of a purifying gas, such as hydrogen, and during the periods of such subjection heating the ore, by subjecting it conductively to the action of an electric current. Unbroken resistance-conductors, in an electric circuit, are imbedded in the ore, to heat it by contact with the electrically heated conductors and by the resistance the ore presents to the current shunted through it. A receptacle is provided with doors, having connected with them hinged sections of a perforated diaphragm, normally forming in the receptacle an upper gas-chamber. A sectional screen-diaphragm in the lower part of the receptacle forms therein a gas chamber. A discharge outlet opens down from the lower gas chamber and a covered inlet pipe leads into the upper gas chamber. A pressure valve is provided for the escape of gases from the receptacle and valve-controlled pipes lead into the lower gas chamber. The conducting rods extend across the receptacle, to be imbedded in the ore.

596,675.—Ore Concentrator. A. R. Wilfley, Denver, Colo. A transversely-inclined movable concentrating table, having a number of longitudinal riffles, extending a portion of the table's length, from the head toward the foot, and being of unequal length, the uppermost being the shortest, while the other riffles

increase in length, from the upper edge to the lower edge of the table. The table has a plain or unrifled portion at the extremities of the riffles, to receive the material caught by the riffles. Means are provided to move the table, so as to carry the material longitudinally toward the tail or foot of the table, where, as it leaves the riffles, it is subjected to the action of the water on the smooth portion of the table, and the final separation from the gangue is effected.

599,739.—Process of Separating Ores. B. F. House, Denver, Colorado. Ammoniated air is admitted below the surface of water or pulp, to precipitate ore held therein. This separates the ore from arsenic.

590,748.—Crusher. M. P. Williams and E. H. Frickey, St. Louis, Mo., assignors, by direct and mesne assignments, to the Williams Patent Crusher and Pulverizer Company, same place. The crusher comprises a casing having a hopper opening, a shaft to rotate in the casing, and with hammer-supports mounted thereon, with hammers pivotally mounted in the supports. The hammers are carried around by the rotary-shaft and operate in conjunction with a barred cage and a dead plate to crush the ore.

590,801.—Treating rebellious ores. W. L. Brown, San Francisco, Cal. To ores finely divided and mixed with water is added a suitable compound which contains an element which has a chemical affinity for the base constituents of the ore. Then an electric current is passed through the material to unite the said element chemically with the base constituents to liberate the precious metals. Then the material is circulated over an amalgamated surface which is not in the electrical circuit and the material is finally returned again through the field of electrolytic action.

590,808-9.—Magnetic Ore-Separator. L. G. Rowand, Camden, N. J. A conveyor-belt travels within and beyond the magnetic field of an electric machine. A receptacle is provided beneath the conveyor within vertical lines through the horizontal limits of the magnetic field and another receptacle is provided beneath the conveyor beyond the magnetic field of the electric machine.

PATENTS ISSUED OCT. 5. 1897.

591,119.—Amalgamator. J. P. Schmitz, San Francisco. The ore is fed down through a pipe by a conveyor-screw into a pot of mercury or lead and carried up by brushes worked by the shaft of the screw and discharged over the edge of the pot.

591,141.—Process and Apparatus; Electrolytic Extraction of Metals from their Solutions. J. W. Richards, Bethlehem, Pa. The solutions are subjected to the electrolytic action of an electric current passing into the solution by a liquid-amalgam anode which is separated from its cathode by a porous partition. A tank contains a liquid-amalgam anode in its bottom region and an electrolyte in the region above the anode; a cathode-plate is arranged in the region of the electrolyte, and a porous partition arranged above the anode divides the region of the electrolyte horizontally into two compartments, and a stand-pipe communicates with the lower compartment so that a body of liquid-electrolyte may be maintained in the lower compartment at a pressure exceeding the pressure of the body of liquid-electrolyte in the upper compartment.

591,335.—Concentrator. H. L. Elton, Philadelphia, Pa. A casing is provided having a water-inlet, an ore-inlet, an outlet at the lower end of the casing, and valves controlling the inlets and outlet, within the cas-

ing a rotatable cylinder provided with an agitator comprising a spirally arranged plate. Openings are provided in the sides of the cylinder between the convolutions of the spiral plate. Suitable chemicals are placed in receptacles in the cylinder which has an outlet at the upper end and has a discharge-outlet at the other end.

Lew E. Aubury, formerly of Bodie, Tombstone and other coast mining camps, and who for the past few years has had an assay office in San Diego, has concluded to establish an office in Los Angeles at 115 West First street. The San Diego office will be run as a branch office, and will be under the management of M. W. Aubury, the well-known assayer, of Kaslo, British Columbia, and associated with his brother in mines on the coast for many years. For the past 18 years they have been associated with mines, mills and assay offices at various camps on this coast. Owing to the great amount of outside work, it has been found necessary to also establish an assay office at some central point. Both offices are equipped with the finest balances and other material necessary for good work. A new system of handling bullion, gold dust, etc., by these offices, has been inaugurated, and shippers will be able to receive the highest possible price for their gold. At the same time returns will be made the same day as received, all work being attended to personally by the Aubrey brothers, no students being employed. Their work will be guaranteed and results held strictly confidential. As the Aubrey brothers have been with the mines of this coast all their lives, they have had abundant opportunity to familiarize themselves with the various ores encountered in the West, and they have made a special study of all branches of the mining business. To those needing the services of practical men, anything in the mining line will be promptly attended to.

The Colorado Iron Works Company, of Denver, Colorado, reports the following shipments of recent date: A ten-stamp mill, including crushers, etc., to the Golden Star Gold Mining Company, Baker City, Oregon; two carloads mining machinery to Kilton Gold Reduction Company, Florence, Colorado. They have also just closed a contract for a smelting plant to be erected in Mexico.

Among the recently published pamphlets received by this office is one, entitled "*Laws of Alaska*," pertaining to civil government, mines and land, by Frederick Hall, author of "*Hall's Mexican Law*," etc., etc. Prack & Blech, of 322 S. Main st., are the publishers. It is a very neat pocket edition of 32 pages and cover, printed on heavy book paper. Nearly one half of the space occupied is devoted to the mineral lands and mining resources, chapter six of the Revised Statutes of the United States, sections 2318-2352. The publishers also devote a few pages to "Land for townsites, commercial and manufacturing purposes." In the preface, Mr. Hall furnishes evidence of the richness of American soil in Alaska, and says: If the developments on American lands should prove what is expected of them, it is needless to say that a knowledge of the United States laws pertaining to Alaska will be essential to all who desire to transact business in that Territory.

Five nuggets, valued at a total of \$1300, were brought into Baker City, Or., by a miner last week from the Gimletville placers, in Grant county.



PUGET SOUND REDUCTION WORKS, AT EVERETT, WASH.

Puget Sound Reduction Works.

This immense plant is located at the northern end of the peninsula in the city of Everett.

The site being on the side of a hill is admirably adapted for a smelter of great capacity making the handling of ore comparatively easy and cheap, with good ground for a slag dump that is easily reached.

It is also arranged very conveniently for the treatment of the ore. They are equipped with eight Dodge rock breakers of 125 tons capacity each. The roasting building has been constantly added to, and now contains nine stacks, one of which has a capacity of 160 tons per day, another of 100 tons per day and the balance of them are rated at 60 and 80 tons each. They are treating from 900 to 1000 tons of ore per day and are employing about 200 men. They have no refinery connected with the establishment which is a fact to be regretted. Connecting the roasters with the chimney is a condenser 8x14 feet and about 100 feet in length through which the fumes from the roasters pass and are condensed. There is no perceptible effect of sulphur near the works. In connection with the smelter they have a number of good mines and sixty-two miles of a four and one-half foot railway connecting the mines with the smelter.

At the mines there are three wire rope trams from two to two and one-half miles in length, running from the end of the railroad up the mountain in three different directions to the mines. They also have a milling plant at the mines data of which could not be obtained. This smelter gets its principal ore supply from British Columbia, Alaska, the States of Washington and Oregon, and a general supply is received from all the properties in the northwest. Grass Valley, Cal., sends a small amount to the Everett smelter and Southern California sends a small shipment occasionally.

The coke used comes from Cokedale, Skagit county, Wash., and the limestone from San Juan island, the wood being supplied locally. The monthly consumption of coke is about 9,500 tons, limestone 9,400 tons and 11,800 cords of wood.

A floating paragraph says the Anaconda copper mines give employment underground to 3,000 men, whose wages amount to \$10,500 a day. Six thousand tons of ore are daily handled, yielding at the smelters between 10,000,000 and 12,000,000 pounds of copper monthly.

A. P. Minear of New York says: "Mining on the Pacific Coast is only in its infancy. The surface has only been scratched over. So far as quartz mining is concerned, it will increase for a thousand years, as tin mining has done in Cornwall, England, and this California country will be the great gold mining district of the world, and all in the heart of a rich agricultural country. There is nothing like it anywhere else."

J. W. Haley of Milford, Me., has invented a self-lubricating bearing that it is thought will prove useful. It consists of a compound of metal and graphite made in such a way as to hold the graphite in solution, which is said to have never been accomplished before. All the metals used will fuse at a much lower temperature than will vitrify glass, which requires 4000 degrees Fahr. These metals are thoroughly mixed while in a powdered form, and combine before the glass becomes liquid. They are then pressed into the journal, and make a hard and self-lubricating bearing, and one which cannot be melted by any friction that could occur as it will stand a red heat. Glass alone makes a journal that will run with less oil than babbitt metal, but it is too brittle. Mr. Haley makes his journal of glass, lead and graphite, which renders it self-lubricating. For light shafting he uses a little antimony; for large shafting with its increased pressure he adds powdered brass and aluminum.

Idaho is the fifth state in the Union in the output in gold and silver, having produced in round numbers \$9,000,000 in the year 1896, says the *Grangeville Press*, California, famous for its mineral wealth, produced only \$16,000,000. The outlook in Idaho gives indication that within the next few years the output of the state will exceed that of California. The interior of the state is just being opened up. The prospector who has for years known of veins, bars and ledges, has at least succeeded in interesting capitalists in the development of these properties. Active mining in the interior of Idaho is as yet in its beginning. Owing to the inaccessible nature of the country, rich ore deposits have been neglected. This year will see a great development of promising properties and it may happen upon some of the famous ledges whose fragments found in placer ground made Idaho so noted as the Golden Golconda in the good old booming times in the early sixties.

PERSONAL NEWS ITEMS

COT. H. L. PICKETT, of Salt Lake City, has been looking over his gold mining interests in the Deer Lodge district of Nevada.

B. E. STAHL, the superintendent of the Alexander & Bent mines on the Galice Creek, near the Rogue River, has left for Boise City, Idaho for a few weeks' visit to his family.

RALPH NICHOLS, the well-known mining engineer of Colorado, has gone to London, en route to Australia, for a British syndicate.

Sr. MANUEL ANGULO, who is the owner of a number of promising prospects in the Jacalitos mining district in Lower California, was up to San Diego last week. He is taking out ore from the Guanita mine, and working it in an arrastræ, which mills \$350 to the ton.

JAMES MOORE, a mining man from Spokane, has been visiting Butte, Montana, lately.

A. C. WASHINGTON, the president of the Horn Silver Company, of Utah, was in Austin, Nevada, last week.

F. M. BRADSHAW has gone down to Ensenada, Lower California, Mexico, where he is interested in some mines in the Alamo.

FRANK REBER has recently returned to Butte, Montana, from a prospecting trip through Idaho.

PROF. F. W. LINNE, an old-time California mining man, but now of Chicago, has recently been inspecting some mining propositions in Mexico, for a German syndicate.

CAPT. T. COX, an old California mining man, recently arrived in Nogales, Arizona, from the Yaqui gold fields in Sonora, Mexico, where he has been examining some claims in the interest of Messrs. Gowen & Harlow and others.

E. P. MORSE LEAD, who has been visiting Butte, Montana, has returned to his home in San Francisco.

The *Engineering and Mining Journal*, of New York, says J. C. Yawger, formerly manager of Victor Bishop & Company, has succeeded to the business of that concern as importer and manufacturer of black diamonds and hort, and continues to carry on that business at 21 Maiden Lane, New York City.

A. W. DAVIS, one of the owners of the Viznaga mine, in Mexican Gulch, near Alamo, Lower California, Mexico, was a caller at the JOURNAL office today.

J. H. HILL, of Butte Montana, and a prominent mining man, has been visiting in the Greenwood Camp, British Columbia, with a view of purchasing the Snowshoe mine for Butte capitalists.

R. A. F. PENROSE and **JOHN BROCKMAN**, mining engineers, and owners of the great Pearse mine, at Pearse, Arizona, who was in this city recently, are now in San Francisco.

CAPT. D. F. HUNT, of Santa Barbara, has returned from Mexico, where he went with a party of Santa Barbara men to inspect some mines.

WILLIAM CHURCH, the mining man of Denver, Colo., has been visiting Utah and Montana mining camps, where he is interested in some good properties.

H. A. KELLER, who is the consulting engineer and superintendent of the Siskiyou copper mines, near Grant's Pass, Oregon, went up to Grant's Pass last week.

O. R. YOUNG, a mining engineer of Salt Lake City, Utah, has returned home from a trip east.

A. E. SMITH of San Francisco, Cal., went up to Grant's Pass, Oregon, to work a claim in Sucker Creek this winter.

MAJOR GENERAL WEBB, of the British Columbia Bullion Extracting Co., has just left for his home in England.

OBITUARY.

It is with the deepest feelings of regret that we have to chronicle the death which occurred on the 6th of September, of Mr. ALEXANDER BROG, late editor and founder of the *British Columbia Mining Record*, of Victoria, B. C. Mr. BROG was a man of extraordinary energy, of indomitable spirit, and it may be said he did not know the meaning of the word "failure." He was, moreover, a man of kindly impulses and generous disposition, much beloved by all who knew him.

THE MARKETS.

NEW YORK, Oct. 12th, 1897.

The following are the Silver, Copper and Lead quotations for the last two weeks:

	SILVER.	COPPER.	LEAD
Sept. 27	56	11 12½	4 40
" 28	54½	11 15	4 35
" 29	53½	11 12½	4 35
" 30	53½	11 10	4 35
Oct. 1	53½	11 10	4 35
" 2	52½	11 10	4 30
" 3	52½	11 10	4 25
" 4	52½	11 10	4 25
" 5	52½	11 10	4 25
" 6	52½	11 10	4 25
" 7	52½	11 10	4 25
" 8	52½	11 10	4 25
" 9	52½	11 10	4 25
" 11	52½	11 10	4 25
" 12	52	11 10	4 25

The market price of silver is very uncertain. On account of the closing down of the principal silver producing mines of the country, the market price has advanced slightly but not enough to cause the mines to reopen again. It seems to us that one of our greatest industries has been ruined by the policy of our government—allowing the price of silver to be fixed by the Bank of England (one of their own statements) at its pleasure.

The United States Assay office in New York reports the total receipts of silver at 251,000 ozs. for the last two weeks.

COPPER.

The copper market, though not very active, continues fairly steady.

Lake copper is quoted in New York at 11 1/4c.; electrolytic copper in cakes, bars or ingots at 10 7/8c.; cathodes at 10 6/8c.; 10 1/4c.; and casting copper at 10 1/4c.

LEAD.

The lead market has been dull and is still declining on account of a decrease in consumption. The quotations were \$4.27 1/2c. The foreign market, however, remained firm with good prices.

SPELTER.

A very satisfactory demand for spelter is reported, but prices do not seem to advance much. The St. Louis market is quoted at \$4.00 and the New York market at \$4.20.

ANTIMONY.

The quotations are 7 1/2c. for Cookson's; 7 1/2c. for Hallette's; 7 1/2c. for Japanese and 7 1/2c. for U. S. Star.

NICKEL.

There has been some movement, but no change in prices can be reported. New York quotations for ton lots are 38 1/2c. and 36c. per pound and for smaller orders 35 1/2c. and 38c.

TIN.

Although the foreign tin market has advanced, the quotations in New York have declined. New York quotations for spot are \$18.50.

PLATINUM.

Prices are firm at \$14 and \$15 per oz., New York. For chemical ware, best hammered metal, Messrs. Elmer & Amend of New York furnish the following quotations, the prices given below being respectively for orders of over 250 grams, for orders of over 100 and less than 250 grams and for orders of less than 100 grams. Crucibles and dishes, 54c., 56c. and 58c. per gram. Wire and foil are 52c., 53c. and 54c. per gram.

QUICKSILVER.

The market is steady with some little trading.

The New York quotation is \$37.50 per flask. San Francisco quotations are \$38 for domestic consumption.

POWDER.

The demand is good at San Francisco with no change in quotations.

For Hercules No. 1, from 11 1/4c. to 17 1/4c., according to strength and quantity. No. 2, from 9c. to 11c., according to strength and quantity.

CORK.

The market is quoted as follows at San Francisco:

Gas Companies'	—	—
English, to land	9 50	—
" spot, in bulk	10 00	—
" in sacks	11 00	12 00
Cumberland	—	—

BORAX.

The San Francisco market is unchanged. The market is quoted as follows:

Refined, in carload lots, in barrels	—	—
Refined, in carload lots in sacks	4%	—
Powdered, in car lots	—	—
Concentrated, in car lots	—	—

THE MINOR METALS.

Quotations are given below for New York delivery.

Aluminum	—	—
No. 1, 20 per cent. Ingots, per lb.	17 1/2	—
No. 2, 18 per cent. Ingots, per lb.	16 1/2	—
Ingots, scrap, per lb.	9 50	—
Rolled sheets,	46c up	—
Alum, Nickel,	16c up	—
Bismuth, per lb.	\$1.00	80
Phosphorus, per lb.	36c	50c
Tungsten, per lb.	70c	—
Tungsten, acid	45c	—
Ferro-tungsten, 60 per cent.	50c	—

CHEMICALS.

The market is rather quiet as regards new business, though deliveries are made in fairly good quantities on old contracts. Quotations, generally, are as follows:

CAUSTIC SODA.

\$2.00 and \$2.25 per 100 pounds for 70 per cent. and 76 per cent. on 60 per cent. basis.

ALKALI.

Domestic, 58 per cent., 60c. for 50 ton lots and over and 70c. and 80c. for smaller quantities, 48 per cent., \$1.00 and \$1.20 for jobbing lots.

CARBONATED SODA ASH.

18 per cent., 90c. and 95c. per 100 lbs. 58 per cent., 75c. and 80c. per 100 lbs.

BICARBONATE OF SODA.

English, 13c. and 2c. per lb. American, bulk \$1.50 and \$1.70 per 100 lbs., 54c., 56c. and 58c. per gram. Wire and foil are 52c., 53c. and 54c. per gram.

SALT SODA.

English, 7c. and 80c. per 100 lbs. American, 65c. and 70c. per 100 lbs.

CHLORATE OF POTASSIU.

\$0.50 and \$1.00 per 100 lbs.

ACIDS.

The trade in acids has been featureless and prices have remained unchanged. Sulphuric acid has moved in a good way on old contracts.

Prices are per 100 lbs. in New York and vicinity in lots of 50 carboys or over. Quotations are as follows: Acetic acid, commercial No. 8 (in barrels), \$1.40 and \$1.50; in carboys, \$1.50 and \$1.65; redistilled, 28 per cent., in bbls., \$1.70 and \$1.80; in carboys, \$1.80 and \$2.05. Muriatic acid, 18%, 75%, 85%, 20%, 25% and 30%; \$1.15 and \$1.25, according to make and quantity. Nitric acid, 36%, \$3.50 and \$4.00; 40%, \$4.00 and \$4.50; 52%, \$4.50 and \$5.00. Oxalic acid, \$7 ex-dock and \$7.25 ex-store. Mixed acids, according to mixture. Sulphuric acid, 66%, in carload lots, 100/15c. higher for small quantities. Chamber acid, \$6.60 and \$6.80 per ton at factory. Blue Vitriol, \$3.62 and \$3.75 according to grade and order.

BRIMSTONE.

Market for brimstone is very dull, both in demand and price. In the absence of new arrivals quotations are \$20.00 and \$20.50 for best unmixed seconds, and \$1.00 less for thirds.

MURIATE OF POTASH.

We quote New York and Boston, 17 1/2c. and \$1.78c. Philadelphia and Norfolk, 17 1/2c. and 17 1/4c.; Charleston, Savannah, Wilmington and New Orleans, for 80/100, 86 per cent. basis of 80 per cent., 1.78c. and 1.81c. in lots of 50 tons and upward.

KARITE.

Invoice weight as taken at port of shipment per ton of 2,240 lbs. testing 12.4 per cent. actual potash, equivalent to 23 per cent. sulphate of potash, \$8.80 and \$8.90.

NITRATE OF SODA.

The demand for nitrate of soda continues rather quiet and quotations are \$1.65 and \$1.67, per 100 pounds.

FINANCIAL NOTES.

The United States Treasury reports total receipts for September at \$21,319,643, and payments at \$24,753,360. The deficit for the month was \$3,432,717 and for the first three months of the fiscal year \$29,012,064. The returns from the customs in September were \$7,943,100 against \$6,387,702 in August. Internal revenue yielded \$12,701,975 against \$11,193,194 in the preceding month. Miscellaneous receipts amounted in September to \$674,568 against \$762,108 the month before. The total receipts for the fiscal year have been \$79,424,353 and the expenditures \$108,441,318. Pensions continue to furnish the greatest drain upon the Treasury, the month's payment being \$10,992,078, about 44 per cent of the total expenditures. The cash balance stands at \$215,587,978.

Imports of specie by water at San Francisco for the eight months ending August 31st, were \$2,772,781 in gold and \$1,399,162 in silver, a total of \$4,171,943, against \$1,069,666 in the corresponding period in 1896. Of the total this year \$2,189,925 came from Australia, \$1,734,715 from Mexico \$108,522 from British Columbia, and the balance from other countries. These figures do not include the amounts received from Mexico overland.

Gold and Silver Exports and Imports.

At all the United States Ports, Aug. 1897, and years from January 1st, 1897, and 1896.

Period	Gold	Silver
Aug. 1	\$1,985,555	\$4,374,175
Aug. 15	\$1,675,111	\$7,474,175
Aug. 31	\$1,425,495	\$5,425,495
Sept. 1	\$1,399,162	\$5,425,495

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports.

New York.

For the week ending October 1st, 1897, and for years from January 1st, 1897, 1896, 1895, 1894.

Period	Gold	Silver
Exports	\$10,700	\$1,633
Imports	1,000	1,000
Week	\$10,700	\$1,633
Year	\$1,000	1,000

N. OHLANDT & CO.

MANUFACTURERS OF

Best Quality of BONE ASH for Assayers.

Our Goods are used in all parts of the United States and Mexico.

EXTRA NO. 1 and NO. 2

CORRESPONDENCE SOLICITED

327 MARKET STREET, SAN FRANCISCO, CAL.

Tutthill Water Wheel

The Best Jet Impulse Wheel in the Market, BARRING NONE.

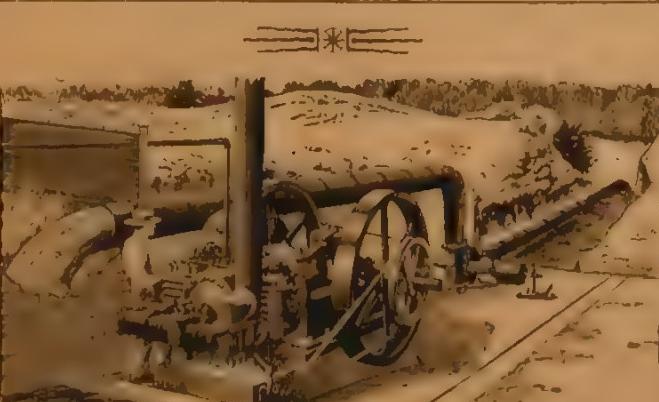
Wheels, Buckets and Noses designed to suit Special requirements, when Head and Conditions are Given. Theoretically as well as practically perfect. Highest Efficiency Guaranteed. Contracts taken for any size plant.



We have a sensitive, simple and durable Governor, entirely new and novel, that will regulate engine speed at will. Specially adapted for electric rail way and lighting plants.

OAKLAND IRON WORKS, BUILDERS,
Write for Catalogue

108 First Street, San Francisco
Telephone May Main



LARGEST GASOLINE PUMPING PLANT IN THE WORLD.

The illustration shows the gigantic pumping plant recently built by the Hercules Gas Engine Works on the Packer Ranch, Colusa Co. 80 h. p. Hercules Engine, pumping 7200 gallons a minute, 27 feet high Burns Gasoline or Distillate oil. Cheapest power known. Gas, Gasoline and Oil Engines, 2 to 300 h. p. Send for Catalogue. HERCULES GAS ENGINE WORKS, 716 Bay St., San Francisco.

The statement of the United States Treasury, on Thursday, September 30, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	Sept. 30	Sept.
Gold	\$1,415,125	\$1,3,500,000
Silver	1,145,285	1,033,525
Legal Tender	1,051,000	1,033,525
Postage and Subs.	3,450,000	3,450,000
Totals	\$221,309,138	\$221,004,256 L 3,605,118

Treasury deposits with national banks amounted to \$17,392,278, an increase of \$219,563 during the week.

The coinage executed at the Mints of the United States during September and the nine months of 1897 is reported by the Treasury Department as follows:

SEPTEMBER		
Denominations	Pieces	Value
Gold	619,241	\$8,762,375.00
Silver	4,148,700	1,050,092.50
Minor	8,437,400	231,929.00
Totals	13,204,341	\$10,041,492.50

NINE MONTHS		
Denominations	Pieces	Value
Gold	4,618,209	\$65,012,842.50
Silver	23,318,693	12,105,533.00
Minor	43,092,374	981,719.00
Totals	71,029,281	\$78,100,095.28

The coinage in September was heavier than in August by \$448,763.50.

MINING STOCK MARKETS.

LOS ANGELES, CAL., Oct. 12, 1897.
The market on the Exchange this past week has been characterized by the rapid advance in Maggianetta, strengthening of Pacific Consolidated, and the better feeling all along the line in all stocks except the Wedge property. This property, an account of whose decline was noted some days ago, is still on the down shoot; prospects are not exceedingly fine for its improvement; reports from the mine are as good as ever but the quotations still hang low. That it will eventually recover to ten or fifteen cents, no one doubts for an instant, but when that better turn will come is the problem that at present confronts most of the brokers on the floor.

Maggianetta is in good ore and looking splendidly; therefore will undoubtedly advance to five cents.

Rumors from Pacific Consolidated company advise that there will be a shipment of ore from this property in the near future, and in fact, many are predicting that this will be the first prop-

erty to be a shipper among all the prospects on the board.

Sales have not been as heavy as was hoped in the new quarters, but still there is good legitimate trading. The new quarters are a pleasure to every one who visits them and the brokers are continuing to be well pleased with the move in every particular. The call room is now fitted up with a ladies' gallery and every facility for trading. As far as convenience, light, air and ventilation goes, there is not a better ventilated hall anywhere in the state, although, of course, for size it does not compare with the big halls at San Francisco.

ROSSLAND, B. C., Oct. 11, 1897.

There are no new features in the mining exchange here. The Monte Cristo, Collona, Iron Horse, Columbia, and Kootenay have closed down. The last named closed pending the completion of the purchase. The last week in August the Columbia and Kootenay shipped 280 tons of ore. The Iron Horse being dependent on the Columbia and Kootenay for their compressed air, had to suspend work. The Collona closed, being dependent similarly on the Monte Cristo.

From January 1st to August 28th inclusive, the shipments of ore from the Le Roi mine amounted to 36,752 tons of ore. The stock has remained strong at \$8 with few shares offered for sale. September 7th, the Le Roi paid a dividend of \$50,000.

The Centre Star and War Eagle are working and have big showings of ore stored in the mines and lying on the dump ready for shipment. The stock has no new features.

The market generally is very dull. Some mining experts have been lately examining the Le Roi property with the view of obtaining an option for a London syndicate. This, it is said, the company will not concede. Be that as it may, it is certain that the Le Roi is employing more men than they ever have done heretofore and forms a very important factor in the pay roll of Rossland.

The Elise share holders have released that property from the debt which has been hanging over it all summer, and will now go ahead with development.

SALT LAKE, Oct. 9, 1897.

The Mining Stock market this week was fairly active, but sales were forced at the expense of falling prices. Ajax was again quiet, very little business being done

in it. Increased working force at the mines. Anchor stock dull, but regular operations continue at the mine. Bullion Beck is not extracting ore but is developing their properties. No expectations of a dividend from these properties now. Buckeye was not very active but prices ruled about the same as last week. The Centennial Eureka remains unchanged. Weekly shipments of high grade ore are made.

Chloride Point was fairly active at unchanged quotations. Both of the Dalys were quiet this week and prices are falling off. Neither company is doing anything. Dexter has let contracts for a new forty stamp mill. The stock is strong and quite active with no special changes in prices. Eagle was not in heavy demand and East Golden Gate was lifeless. Little was done in Four Aces, Geyser-Marion has advanced some.

The properties are looking and doing well. Galena held its own while Grand Columbia was inactive and weaker. Horn Silver is expected to make a very fine showing its next official report, and the mines are in the best of conditions. No change occurred in Murcer. Offerings were light with no pressure to sell. The properties are in admirable condition.

NEW YORK, Oct. 8th, 1897.

Though the public demand for mining stock is still small, prices in many instances are higher than last week, especially for the dividend paying stocks. The Comstocks, notably those whose properties are on Gold Hill, have moved upward in price owing to favorable reports.

The Colarado stocks are steady. The California group is very quiet. Standard Consolidated sold at \$1.80, and is the first 100 share lot that has been sold for a long time. There were several sales of the South Dakota stock. Homestake at \$37.25 or \$39; the latter price is 50¢ higher than last week. Horn Silver of Utah sold down to \$1.00 this week. There continues to be a fair demand for Fortuna, on the Consolidated Stock and Petroleum Exchange. It has declared another dividend of \$10,000 on its stock, which makes \$90,000 this year and \$130,000 since September, 1896.

A new company has called on the Mining Exchange this week—the Yukon Mining Company. This is an auxiliary to the Rossland Gold Mining Development and Investment Company, Limited, and is under the same management. The company is represented in New York by

members of the Exploration Syndicate, of which Thos. J. Hurley is secretary and treasurer and F. G. Corning is manager. The company was formed to operate in the Klondike region. The stock has been selling at 186/223¢ on the Mining Exchange.

SAN FRANCISCO, Oct. 11, 1897.

Considerable active trading is reported for this week. Crown Point and Belcher stocks are in the lead. A fair degree of activity is reported from the Cumstock, Nev. mines, which caused quite a flurry in the mining share market. Work is also being pushed on the Alta property, and ore improving. In Justice they are getting ready for more active exploiting. The assessment levied by California of ten cents per share will admit of a reasonable sum of work.

There is no change reported on the development work on ore extracted from the Overman, Kentuck, it is stated in official letters has taken up the cross-drift and is running it in its own ground.

Important development work has been started in the Yellow Jacket. There is nothing new to report from Confidence and Challenge mines. Development work continues steadily. Cross drifting on the surface level in the Consolidation Imperial is being steadily prosecuted. Ore is being extracted from the 500 foot level of the Alpha.

Very favorable reports continue to come in from Bullion. Air connections have been made in Potosi and work is being vigorously prosecuted. The stock has advanced the last week.

Good development work is being made in Chollas and the shares have made a good advance, having nearly doubled in one week.

No work is reported from Hale and Norcross and the stock does not seem to have any demand for it. No change in the work of Savage is reported. This stock is another one of the list that has made a good advance this week. One thousand tons of low grade ore is to be extracted from Gould and Curry. In the Con Virginia active work is being done on the 1550 foot, 1650 foot and 1750 foot level, but no ore is being extracted. In Ophir they are running west on the 1000 foot and Central tunnel levels.

In the Mexican, Union and Sierra Nevada development work still continues but stocks are about the same as last week.



FACTORY
3101-3141 Blake St., 1742-1746 Champa St., Denver, Col.

Ores! Ores! Ores!!

Gold, Silver and Lead Ores and Concentrates

Purchased at Reduced Rates for Treatment.

Selby Smelting and Lead Co.

416 MONTGOMERY ST., San Francisco

Consign Shipments to Vallejo Junction, Cal.

Denver Fire Clay Co.

Assayers' and Chemists' Supplies

MANUFACTURERS OF

Crocks, Scourers & Muffles

And all other kinds of

Fire Clay Material.

SPECIALTIES—Strictly c. p. Acida
Teal, Lead, Bone Ash, Cyanide
Potash, Argol, Borax, Borax Glass
Iron Sulphides, Litharge, Soda
Mining Fluxes, etc.

Sole Agents for the Alnsworth Balances

OFFICES:

1742-1746 Champa St., Denver, Col.

FAUTH & COMPANY,

(O. N. SARGMULLER),

Engineering and Mining Instruments,

WASHINGTON, D. C.

Attention is called to our newly improved Mining Transit, with best Solar Attachment and Vertical Sighting Telescope and Quick Leveling Head

Cobb & Hesselmeyer,

MECHANICAL AND HYDRAULIC ENGINEERS

421 Market St., San Francisco, Cal.

CHICAGO SCHOOL OF ASSAYING,

J. J. DUNHAVEN YOUNG, Director

1750 MONTSOCK BLDG., CHICAGO, ILL.

Courses in Klein Chemistry, Chemical Analysis, Fire Assaying of Gold, Silver, Copper and Lead Ores, etc. Ore Testing, including Mill Runs by Mercury, Cyanide and Chlorination processes. Individual Instruction only. Open evenings. Opportunity for Miners & Prospectors.

B. T. LLOYD

GOLD MINES,

Stocks and Bonds

BOUGHT AND SOLD

McCormick Building, Salt Lake City, Utah

An Assay

Will show what is in your ore...

A Mill Test

Will show what you can get out of it

We Do Both

Practical working tests made of ALL CLASSES OF ORES and advice given as to best methods of extracting values. Mines examined and reported on. Twenty years experience with Pacific Coast ores.

F. M. Johnson & Co.

23 Stevenson Street,

SAN FRANCISCO, CAL.

Manufactured by the Denver, Col.

Western Chemical Co. Refining and other processes. Also Muriatic and Nitric Acid, Blue Vitriol, Copperas Refined Sulphate of Soda, etc.

Sulphuric Acid

**NEW IMPROVED
McGlew Ore Concentrator**

IN USE IN
CALIFORNIA
OREGON
WASH. & IDAHO
NEVADA
ARIZONA TERRITORY
MEXICO
CENTRAL AMERICA
AUSTRALIA



Patented
Sept.
1893

We guarantee these machines to handle an average of ten tons per 24 hours, and to do cleaner and closer work than any other CONCENTRATOR in use.

Price, \$800 Net Cash, f. o. b.
Write for Descriptive and Testimonial Circulars
THE McGLEW ORE CONCENTRATOR CO., 111 First Street, San Francisco, Cal.



**GET THE
ORIENTAL GAS ENGINE**

It is the Only Engine on Earth.

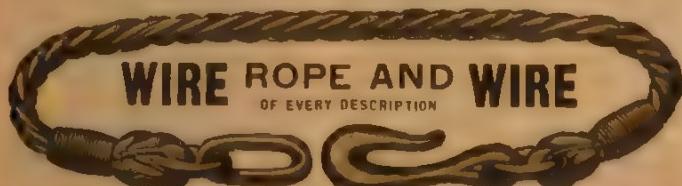
Write for Descriptive

LOS ANGELES WINDMILL COMPANY

223 E. 11th ST., LOS ANGELES, CAL.

Dealers in all kinds of Pumping and Irrigating Machinery

WASHBURN & MOEN MFG. CO.



PACIFIC WORKS

SAN FRANCISCO

Los Angeles Mining and Stock Exchange
202 SOUTH BROADWAY, LOS ANGELES, CAL.

THE COLORADO IRON WORKS COMPANY, DENVER, COLORADO.

ENGINEERS AND MANUFACTURERS

**Ore Milling and Smelting
EQUIPMENTS**

For all Processes

COMPLETE PLANTS DESIGNED and ERECTED

We make Smelting Furnaces, Ore Dryers and Roasters, Stamp Mills, Ore Breakers, Crushing Rolls, Roller Mills, Ore Feeders, Perfection Concentrators, Vanning Machines, Shime Tables, Hydraulic Classifiers, Forged Steel Shoots and Dies, Elevators, Mine Cages, Ore Cars and Buckets, Amalgamating Pans and Settlers, Cyanide Tanks, Chlorination Barrels, etc., etc., etc.

CATALOGUES ON APPLICATION

We Manufacture

**STAMP MILLS,
CRUSHERS,
CONCENTRATORS,
ENGINES,
PUMPS, HOISTS,**

Stockton Gas Engine, Water Wheels, Wood, Iron, and Clutch Pulleys, and general repairing of all kinds of Wood and Iron. All work done in our own Shop. Estimates furnished for Plants Complete

Best Equipped Works in California, outside of San Francisco
CORRESPONDENCE SOLICITED



**Matteson
Manufacturing Co.**

Stockton, California

WHITNEY COMPANY

Iron and Steel, Miners, Blacksmiths, Machinists Supplies

Agents for Arizona and New Mexico
Exploratory, Mining, Smelting, Refining, Metallurgical, Chemical, and General Supply Works
SUPPLIES OF ALL MATERIALS FOR MINE, MILL, AND FURNACE NEEDS
ELBURG & GROUSE * * * NEW MEXICO

C. A. LUCKHARDT & CO.

Nevada Metallurgical Works,

71 AND 73 STEVENSON STREET, SAN FRANCISCO, CAL.

Assaying, Analyses, Sampling.

Practical Working Tests of Ore by all Processes
STAMP MILL AND CONCENTRATOR IN OPERATION ON PREMISES



**The Finlayson Patent
WIRE ROPE**

TRAMWAY

The Newest and Best Apparatus for Tramway Work. And
the Finest Wire Rope in the World. Specialized for Tramways and
Special Pumping in operation.

A. A. BAILEY

MANUFACTURER AND DRAFTER OF THE LEAD AND

Packings and Engineers Supplies

LUBRICATING OILS AND COMPOUNDS

Exclusive Manufacturer of the UNSURPASSED

BAILEY

Anti-Friction Metal and all other Grades of Babbitt Metal

Sole Agents for Reliable Steam Pumps

300 South Los Angeles Street, LOS ANGELES, CAL.

P. & B. PAINTFOR MINES, SMELTERS, CHLORINATION WORKS,
THE CYANIDE PROCESS.

<- WOULD BE PUBLISHED TO MAIN CIRCULARS ->

PARAFFINE PAINT COMPANY,

Los Angeles and San Francisco

Second-Hand MachineryPumps, Engines, Boilers, Shafting,
Pulleys, Water Pipes, Belting, Etc.

Repairing Promptly Attended to at Lowest Rates.

McIntosh & Wolfman,

137 and 139 Beale Street.

**FOUNDRY****Mining Machinery**

Iron and Brass Castings of all kinds, Shoes and Dies, Pumps, Engines, Boilers, Stamp Mills, etc., etc. Machinists and Foundrymen.

Standard Iron Works,

PHOENIX, . . . Arizona

**E. C. WOODWARD,
Assayer and Chemist**

Telephone 15

24 E. Kiowa St., Colo. Springs, Colo.

Mines Examined

Processes Tested

HORACE F. BROWN, M. E.PATENTEE OF
BROWN'S SYSTEM OF MECHANICAL ROASTING
FURNACES, Complete Automatic Milling
Processes, Etc.

1500-7 MANHATTAN BLD., CHICAGO

THE JOHANNESBURG SAMPLING WORKS

Purchasers of Gold, Silver, Copper and Lead Ores and Concentrates

Cash Returns Made Within Twenty-four hours after receipt of Ore.

CHAS. R. WORS, MANAGER,

Johannesburg, Cal.

Why SEND YOUR MONEY EAST FOR

Shoes and Dies, Camp Tappets, Car Wheels, Shafting, Hangers, Pulleys, Ore Cars and Iron and Brass Castings, when they can be obtained for the same price and in less than half the time

AT THE

Albuquerque Foundry and Machine Works,

Repairing of Mill and Mining Machinery a Specialty, Albuquerque, New Mexico.

**Los Angeles
Business College**

212 WEST THIRD ST., LOS ANGELES, CAL.

Gives a thorough course in PRACTICAL ASSAYING and CHEMICAL ANALYSIS in connection with their other courses of study. For full information address them as given above.

BELTING Of all Descriptions,

FOR MILLS MINES AND SMELTERS

Specialties

DYNAMON WATER PROOF,
RAWHIDE AND SUEWD
BELTING.Fred R. Cook,
208 Mission Street, San Francisco, Cal.**Harper & Reynolds Co.,
MINING + SUPPLIES ***

AGENTS FOR

Giant Powder Co., Galvanized Spiral Pipe,
Steel and Iron.151-154 North Main Street, LOS ANGELES, CAL.
151-152 North Los Angeles Street,**THE CHEAPEST PLACE ON EARTH BLOWERS AND FORGES**

TO OUTFIT A MINE IS AT

The J. H. MONTGOMERY MACHINERY CO.,

1220-22 Curtis St., Denver, Colo., U. S. A.

Just Listen—Reliable Company
Saves \$100. When price reduced
to \$100. Steam Hoisters, \$300 and
up; hand hoisters \$30. steel ore
buckets all prices; prospectors'
stamp mill \$300, A 100
stamp mill, new,
450 lb. stamp
High mor.Latest Improved, only \$300. Ore tested and
mineralization and concentration mills built to
fit the ore and guaranteed to prove what we say.Coal Mine equipment. See our
Jigs, Tramway, ACES, ETC. in
Mills, Ores, Salesmen, Engineers
etc. weight 6000 lbs.
price \$300; Pneumatic, Rock Drills
and Compressors, Humping
Tables, Chlorination Mills, etc.
ore, 7510, weight
8,100 lbs. only \$300.
Cordwood Mill, 100
lb. patent
Turntable Car
bow equal load
on one side
wheel aware
ever, dump an
automatically
open up
hundreds of useful tables
FREE. Best Machinery and
least money for it.
Johnson & Musser,
Manufacturers,
113 N. Main St., Los Angeles, Cal.THIS Forge
Heats 1000
Weight 22 lbsPRICE
\$6.50Manufactured
expressly
for Prospect
ers

JOHNSON & MUSSER,

Manufacturers,
113 N. Main St., Los Angeles, Cal.**Nelden-Judson Drug Co.**The Only House in Utah that
carries a Full Line of**ASSAYERS' MATERIAL,
Furnaces, Scales, Balances,
Weights,**C. P. Cyanide Potash, Per Oxide Soda,
Blue Vitriol and All Chemicals.**Salt Lake City, Utah**

EL PASO AUTOMATIC HORSE WHIM



This is the latest improved horse power hauler offered prospectors, miners, etc. The best features of other styles have been embodied. The end thrust is removed, thus increasing the efficiency and reducing considerable wear. The automatic safety break is so arranged that accident is impossible being in position until held out by operator to lower bucket. It is made entirely of iron and steel. Weight, about 1,200 pounds. Heaviest single piece, 75 pounds.

Price, on Cart in Colorado Springs, \$80.00
Cars, Buckets, Rope, Rails, etc., The Climax
Engines, Hand Power Machine Drills
Manufactured by The Russell Iron Works Co.,
Colorado Springs, Colo. U. S. A.**LEW. E. AUBURY,**

ASSAYER AND



CHEMIST

ROGERS & BALDWIN,
MACHINE SHOPAll kinds of repairing
for Engines, Boilers
and Machinery

Riverside, Cal.

RANDSBURG**A. J. PETTER.****MINING ENGINEER AND ASSAYER**Examiner and Dealer in Mines. Have
Several properties listed for sale. Correspondence solicited with intending purchasers**J. B. Pope—**U. S. Mineral Surveyor,
San Bernardino, Cal.

W. W. MONTAGUE & CO.

MANUFACTURERS OF

Riveted Sheet Iron and Steel

WATER PIPE

For Hydraulic Mining Power Plants and Mills.

Iron Cut, Punched and Formed for Making Pipe on the Ground Where Required to Save Freight.

GALVANIZED IRON Air Pipe, Concentrator Rolls, Water Tanks SAN FRANCISCO, CAL.

THE BI-METALLIC ASSAY OFFICE AND CHEMICAL LABORATORY.



Assaying in all its branches. Determinations accurately made.

R. A. PEREZ, E. M., Mgr.,

FORMERLY: Chief Assayer El Paso Smelting Works, El Paso, Tex.
Assistant Chemist Consolidated Kansas City Smelting and Refining Co., Argentine, Kansas.

(Prompt Returns.)

124 S. MAIN ST., LOS ANGELES CAL.

\$33,189,500

Paid in Dividends by Utah Mining Stocks

Weekly Market Letter on Application Quotations by Wire or Mail.

JAMES A. POLLOCK, Mining Stock Broker,
SALT LAKE CITY, UTAH.**MICHIGAN COLLEGE OF MINES**

A State technical school. Practical work. Special facilities for men of age and experience. Elective system. 45 weeks a year. Non resident tuition \$150 a year. For Catalogues, address Dr. M. E. Wadsworth, Pres. Houghton, Mich.

COLD HUNTERS!
MINERAL ROD

Locates Mines, all kinds of Minerals, Precious Metals, and hidden treasures. Price, \$20.00 by Express, C. O. D. Address

WM. WOODWARD,

LYNCHBURG, TENNESSEE

**Nolan & Smith
Mining • Brokers**

Capital Furnished for Purchase of Mines and Prospects.

Also for Development of those that have merit. Send description and Samples

228 W. SECOND ST., LOS ANGELES, CAL.

UNION HARDWARE AND METAL CO.

DEALERS IN

Boiler Tubes, Iron Pipe and Fittings
RAILROAD, MILLING, MINING and FOUNDRY SUPPLIES

214 and 216 N. Los Angeles Street

Los Angeles, Cal.

J. H. MASTERS,
Manufacturer of and Dealer in
Ore Sacks, Tents and Camp

Furnishings

218 Commercial St.,
LOS ANGELES, CAL.**TANKS**

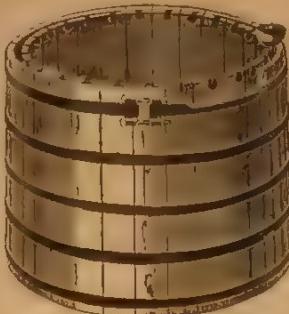
OF EVERY DESCRIPTION

—FOR—

Mines, Mills and Cyanide Plants
Patent Non-Shrinking WaterTanks

The only Tank that will stand the Desert

and Hot Climate

Write for Catalogue and Estimate on any kind
of Tank Work

Pacific Tank Co.

33 BEALE ST., SAN FRANCISCO

To Gold Miners!**Silver Plated Copper AMALGAMATING PLATES**

For Saving Gold In Quartz and Placer Mining.

EVERY DESCRIPTION OF MINING PLATES MADE

Only Best Copper and Refined Silver Used. Old Mining Plates Replaced. Twenty-six Medals Awarded.
Gold, Silver, Nickel, Copper & Brass Plating.**Denniston's San Francisco Plating Works**

653 and 655 Mission Street, San Francisco, Cal.

Telephone, Main 5931.

E. G. DENNISTON,

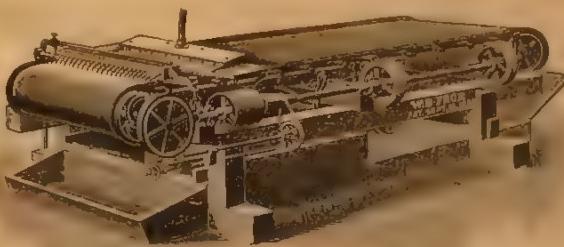
Proprietor

Send for Circular.

TRUE ORE CONCENTRATOR

Over 4,000 in Actual Use

Manufactured under Patents of April 27, 1880; Sept. 18, 1883; July 24, 1883; and March 31, 1891



It can be safely stated, without going into a description of several new and untried concentrators that have lately come into the market, that where sulphurites are of such value as to make close saving necessary, the True Vanner is always used. It is the only endless belt concentrator in the market that can be relied on to handle all classes of ores, and give universal satisfaction. (In all competition of concentrators the True Vanner is taken as the Standard machine of the world, and all comparisons made by it. There have been over 4000 of these machines sold, 1700 having been sold on the Pacific Coast alone.) They are in use in every part of the world where mining is carried on, and in all cases they are giving perfect satisfaction. From time to time valuable and important improvements have been made in this machine to increase its capacity and durability, and particular attention is called to the Patent Lip Flange for the rubber belt, which does away with nearly all the strain and cracking, as in the old style of flange, making the life of the belt several times longer than that of other style belts in the market. The lip of flange bends outward in going over the large end rolls, thereby distributing the strain in the solid rubber, and bringing virtually no strain either at the edge or at the base of flange, as is the case in all belts with a raised edge.

Price of 4-foot wide Plain Belt True Vanner	... \$500 f. o. b.
" Improved Belt True Vanner	... 000 f. o. b.
" 6-foot wide Plain Belt	... 600 f. o. b.

For any information, pamphlets, circulars or testimonials, call on or address

JAS. S. BROWNELL, Western Agent TRUE VANNING MACHINE CO.,
Successor to ADAMS & CARTER

132 Market Street, San Francisco

THE WILSON
Forged High Grade Steel
Shoes and DiesGuaranteed to Wear Longer and Prove Cheaper than any others.
Made by use of Special Appliances. Patented Aug. 16th, 1891.

Made only by —

WESTERN FORGE AND ROLLING MILLS,
St. Louis, Missouri**JOSHUA HENDY MACHINE WORKS**
SOLE AGENTS
38 to 44 Fremont Street, San Francisco, Cal.

R. M. CALKINS

PHONE "BLACK" 804.

J. J. LONERGAN

LONERGAN & CALKINS,
Gold & Silver Refiners & Assayers
Mining Experts and Promoters
 Miner's Gold and Silver Bought
 Also Old Gold and Silver
 Agents for S. S. LIGHTFOOT SYNDICATE
 Cable Address "Loneragan, Los Angeles"
 London, England.
 127 W. FIRST ST. LOS ANGELES, CAL.

Assayers and Chemists**WADE & WADE**

Best and Oldest Establishment in Southern Cal.

115 N Main St. Los Angeles, Cal.

AUSTIN BROS.**IRON, STEEL, MACHINISTS
AND BLACKSMITH SUPPLIES**Iron Pipe, Oil Cans, Lubricators, Belting, Packing,
Filing, Asbestos Covering, Steam and Water Gages,
Sheets and Plates, Galvanized Plates, Brass and
Iron Steam Fittings, Etc., Etc.

Stockton, Cal.

THE MORRIS ROCK BREAKER & ORE CRUSHER

MORRIS ROCK CRUSHER

IT MAKES A FINER AND MORE EVEN PRODUCT
THAN ANY OTHER IN THE MARKET, AND IS PE-
CULIARLY ADAPTED FOR DISTRICTS WHERE FUEL
AND WATER ARE SCARCE.

IT REQUIRES LESS POWER THAN ANY OTHER
MACHINE PERFORMING THE SAME AMOUNT OF
WORK.



MORRIS ROCK CRUSHER

For further information, Catalogues and Testimonials apply to

D. M. DOUB, General Agt., 187 First St. San Francisco.

E. C. CREEEL, Presidente.

JUAN A. CREEEL, Gerente

COMPANIA INDUSTRIAL MEXICANA

Ferreria
Fundicion de Fierro y Bronce

Fabricantes...

de toda clase de

**Maquinaria para minas y
Haciendas de Beneficio**

Quebradoras Maquinas de vapor.
 Retoras, Ruedas Hidraulicas, Calderas
 de todas clases, **Maquinas de extraction**. Car-
 ros para mineral, Molinos Huntington. Bombas,
Malacates de Vapor, panes de amalgamacion.
 Concentradoras, compresores de aire. Lavaderos,
 Haciendas de Lixiviacion; Hornos de chaqueta
 ["Water Jacketed."]



**Dinamos, Motores y Material
Electricos.**

BARATURA y PRONTITUD.

Se envian circulares Pedido. Para informes dirigirse al gerente,

Se solicita la correspondencia.

JUAN A. CREEEL.**Chihuahua,****Mexico**



**W. T. GARRATT & CO.
Brass & Machine Works.**

MANUFACTURERS

HOOKE STEAM PUMPS,
MINERS' SINKING PUMPS,
TRIPLE PLUNGER PUMPS,
JACKHEAD MINING PUMPS,
CENTRIFUGAL PUMPS,
GONGS FOR MINE SIGNALS,
LUBRICATORS & OILERS,
SUCTION HOSE AND COUPLINGS,
HYDRAULIC PIPES,
IRON PIPE AND FITTINGS
BARRETT METALS,
PACKINGS
REPAIRING PROMPTLY ATTENDED TO.

138 to 148 Fremont Street,
SAN FRANCISCO, CAL



MINERS' OUTFITS.

IRON MORTARS,
MAGNAV MORTARS,
GOLD WASH PANs,
MINERS' HORNS,
BITEAS, CRUCIBLES,
HORSE-SHOE MAGNETS
MAGNIFYING GLASSES
IRON RETORTS,
CHEMICALS, SCALES,
WEIGHTS, ETC.

Including a full assort-
ment of Mine and
Mill Supplies, Assay
eq't Materials, Etc.

Sole Agents for the
Pacific Coast for the

W. S. TYLER WIRE WORKS CO.

Manufacturers of

Steel and Brass Wire Battery Screens
Agents for Baker & Adamson's Chemistry
Pure Acids. A full Stock always
on hand

Nitric Acid, sp. gr. 1.42; Muriatic Acid, sp. gr.
1.20; Sulphuric Acid, sp. gr. 1.845

JOHN TAYLOR & CO.
63 FIRST ST., SAN FRANCISCO

Prices on application.



**STATE ORE
Sampling Works**

Established 1880.
P. S. HALL, Pres.
J. S. McKNIE, Sec.

A general Ore Market. Largest Works in
Colorado. Modern Mills and Machinery
at Denver, Idaho Springs, and Black Hawk.
Ore Sold on COMPETITIVE BIDS.
Write for our reference book. Address
STATE ORE SAMPLING CO.,
Gold Bullion bought. Denver, Colorado

Ship Your Ore

— TO THE —

Silver City Reduction Co.

SILVER CITY, N. M.

CORRESPONDENCE SOLICITED



WHITE, ROGERS & COM'Y.
ENGINEERS AND CONTRACTORS

500 PINE STREET, SAN FRANCISCO, CAL.

Sole Pacific Coast Agents and Builders of the Celebrated

WILFLEY CONCENTRATOR

One of these Machines will take the place of TWO or THREE Belt Concentrators of any make and do very much better work.



J. Q. A. KING, Assayer and Cyanide Operator
Sole Agent for Arizona Kendall Gold and Silver Extraction Co.
An Improved Cyanide Process.

Mines, Mining, Milling Smelting and Cyanide Machinery, Zinc Shavings, Sheets
and Discs, Mercury and Assays, Supplies, Manufacturer's agent for everything from mine to
mint. Scientific books and papers. Smelting ores and concentrates wanted, also tailings.
Prompt quotations and shipment.

PHOENIX, ARIZONA

SEND FOR CIRCULARS

Some Practical Reasons Why the Wilfley Concentrator Should be used in Gold Mills:

1. It will successfully handle three or four times more material than any belt concentrator made, barring none.
2. It will save more sulphurates in proportion while so doing, and catch any float gold, amalgam or quicksilver which may escape from mortars or plates.
3. It will make cleaner and much more valuable concentrate, thus saving useless expense for transporting valuable material, as also extra cost for treatment.
4. It requires little or no attention when once adjusted and no expert is required to either adjust or run the machine.
5. It will have much expense in power and room, and the first cost of a mill requiring concentrators.
6. It has no expensive belts to crack and wear out, nor complicated machinery to keep in repair.
7. It is the only sensible plan of concentration, as any kind of material can be worked, which is not true of any style of belt machine.

GEO. M. COOLEY,

Shelf Hardware, Iron, Steel, Powder, Caps, Fuses, Packing, Belting, Asbestos
Covering, Shovels, Picks, Iron Pipe, Steam Fittings.

Agent Weber Gasoline Engine.

SAN BERNARDINO, CAL.

DO WE GET DUPLICATE ORDERS?

Consolidated Kansas City Smelting & Refining Co.

Refiners of Gold, Silver, Copper and Lead

Smelting and Refining Works, Argentine, Kansas, El Paso Smelting Works, El Paso, Texas
Arkansas Valley Smelting Company, Leadville, Colorado

COMMERCIAL DEPARTMENT.

C. PENNEY Manager

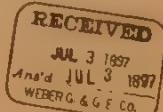
Argentina, Kansas

July 2nd, 1897.

Re: Gasoline Engine.

Weber Gas & Gasoline Engine Co.

Kansas City, Mo.



Gentlemen:—

You shipped us, last month, to our mines at Sierra Majada, one 30 horse power gasoline hoist. I wish you would make for us, and ship as quickly as possible, a duplicate of this hoist for our mines at Chihuahua, Mexico.

I am,

Yours very truly,

Ch. Finney

Sizes 6 to 50 Horse Power. Write for "Hoister" or "Engine" Catalogue.

Weber Gas and Gasoline Engine Co.,

434 S. W. BOULEVARD,

KANSAS CITY, MISSOURI

Advertise in THE JOURNAL, it pays.

A SELF MADE REPUTATION

Bolthoff, Combined Noiseless Gear and Friction Hoist

HAS ESTABLISHED ITS POSITION AS THE

Most Economical, Durable, Compact and Powerful Prospecting Hoist
IN THE MARKET.

Can be seen in Los Angeles at the new Store of

CHARLES B. BOOTHE & CO.

HENDRIE & BOLTHOFF Mfg Co.,

DENVER, COLORADO, U. S. A.

KLONDYKEOur Mining Dredge Is
Just the Thing for It
PLACER MINING
A SPECIALTY.Dredging & Mining Machinery Co.,
Kansas City, Mo.**The Machinery and Electrical Company,**

SNOW SINKING PUMP

Machinery and Supplies

MINING HOISTS, WHIMS, ORE BUCKETS,
Bates Corliss Engines, Snow Steam Pumps
OIL CITY BOILERS AND ENGINES,
Hercules Gas Engines, Lawrence Centrifugal Pumps
GATES IRON WORKS MINING MACHINERY
Tremain Steam Stamp Mills
Electric Lighting, Railway and Transmission Apparatus
Washburn & Moen Mfg. Co's Wires and Cables

Also Dealers and Jobbers in

Shafting, Belting, Dodge Wood Pulleys, Hangers,
Boxes, Etc.

WRITE FOR PRICES

351 & 353 N. Main St. Los Angeles, Cal.

**HALLIDIE
PATENT
ROPEWAY**

— FOR THIS —

Transportation of Ore, Fuel and other material, has been erected by us all over the country and is the most economical and efficient method known. Nothing to get out of order; has always given satisfaction.

California Wire Works

(LICENCIERS)

Office, 330 Market St., San Francisco, Cal.

EASTERN PRICES BEATEN IMPROVED FACILITIES, FINEST WORK LOWEST PRICES**PERFORATED SHEET METAL**

For Flour and Rice Mills, Grain Separators, Shaker Screens, Gravel and Cement, Revolving and Shot Screens, Stamp Batteries, Iron, Steel, Russia Iron, American Flanish, Zinc, Copper and Brass Screens for all uses. Inventor and Manufacturer of the celebrated Slot Barred and Diagonal Slot punched Screens.

MINING SCREENS A SPECIALTY

Mill owners using screens extensively, can contract for large supplies at favorable rates. J. W. QUICK is the only competent and successful manufacturer of Screens on the Coast, having furnished Screens

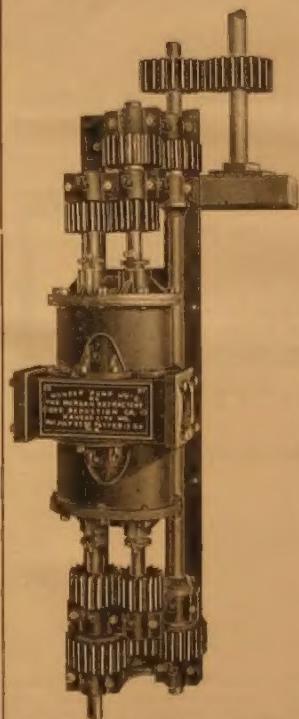
to the Principal Mills of California, Nevada, Alaska, Mexico, Arizona, Central America, Australia and British Possessions.

San Francisco Pioneer Screen Works

(Established 1860)

221 and 223 FIRST STREET, SAN FRANCISCO.

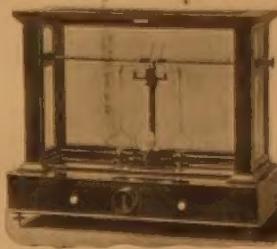
J. W. QUICK, Prop.

**THE NEW, IMPROVED
WONDER PUMP,**Especially Adapted
to paydirt

For full particulars and Catalogues Apply to

**The Wonder Pump
Manufacturing Company**

Armour Building, Kansas City, Mo.

**AINSWORTH NO. 1.**

SENSIBLE TO 1-200 MILLIGRAMME

This is a short beam balance and especially adapted for smelters and assay offices where extreme accuracy and rapidity are perquisites.

Complete catalogue of Assayers' and Chemists' supplies, including this and other balances, mailed upon application. SELLING AGENTS,

The Denver Fire Clay Co.,
1742-1746 Champa St., Denver, Colo.
P. O. Box, 1540**PATENTS!**
TOWNSEND BROTHERS
SOLICITORS**OF PATENTS**

Patents on Inventions secured in all countries. Copyrights, Trade Marks and Labels.

Office, 9, Downey Block, Los Angeles, Cal.
Telephone 347.

Bullion Bought and Sold CHICAGO, ILL.

THOMAS J. DEE & CO.
Gold and Silver Refiners and Assayers

67 and 69 Washington St.,

Please mention this paper when you write.

"THE MINING LAWS OF CALIFORNIA"

by Frederic Hall, author of Hall's Mexican Law Price, \$20 cents by mail, Postal or Express Order. With opinions of the Attorney-General and J. E. Cowley, Esq., on the New and Local Law, and Court decisions on important points. Address J. BELL, Publisher, Box 49, Los Angeles, Cal.

**WIRE TRAMWAYS**

Ropeways,
* Incline Planes,
and Railways.

Hoisting Apparatus, Patent Grip Pulleys, Transmission of Power by Wire Ropes; 25 years experience; Send for Ropeway Pamphlet.

California Wire Works

WORKS:

332 Bay Street, San Francisco, Cal.

HANFORD IRON WORKS,
SAN BERNARDINO, CAL.

Mining & Milling Machinery

Railroad, Agricultural, Architectural
and all kinds of Iron Castings
made on Short Notice.

Small Rock Crushers, One, Two and Three
STAMP MILLS & Specialty.

SHOES AND DIES made on Short
Notice.

GOLD

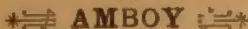
—AT—

Virginia Dale

Reached in the Shortest and
most expeditious way via

The Santa Fe Route

—AND—

 AMBOY 

Only Six Hours stage ride. Stage leaves Amboy for DALE CITY every Wednesday on arrival of Santa Fe through trains. 150 pounds carried free on railroad; 50 pounds free on stage. Through tickets and particulars of any Santa Fe Route Agent.

SAN FRANCISCO OFFICE
844 MARKET ST.

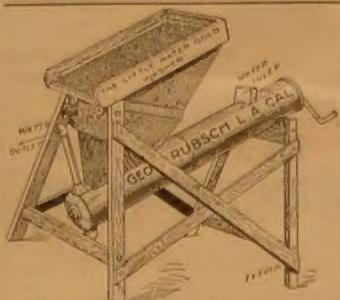
LOS ANGELES OFFICE
200 S. SPRING ST.

Map of Alaska, Free!

On request, we will send you, FREE, a complete MAP OF ALASKA, 17x22 inches, and printed in many colors. It shows the route from Seattle to the Klondike Region and all other points in Alaska; indicates the gold fields, the mountains, the rivers and the coast line. It gives a complete list of the outfit one needs for a year's stay in Alaska and the price of the same, besides a fund of information not obtainable from any other source. Write for it to-day.

Remember It Costs You Nothing, and we Pay
the Postage.

Montgomery Ward & Company,
111 to 120 Michigan Avenue,
The Great Mail Order House. CHICAGO



The Little Water Gold Washer
AIR PIPES AND TANKS for Mining Purposes
For full particulars apply

219 Commercial St., LOS ANGELES, CAL

DENVER PUBLIC --- SAMPLING WORKS,

M. E. SMITH, PRESIDENT.

ORES SOLD ON THE
PUBLIC MARKET. Denver, Colo.

Miners Attention!

We Sell Powder, Caps, and Fuse, **Mining Machinery**, Belting, Asbestos Goods, packing of all kinds, Picks and Shovels, Iron and Steel; Iron Wheelbarrows, Ore Sacks, Tents, Portable Forges and General Mining Supplies. Agency Trux Mfg. Co and Studabaker Wagons.

WILCOX & ROSE CO.,

San Bernardino, Cal.



656-58 HOWARD STREET, SAN FRANCISCO.

C. C. FOWLER.

Los Angeles Tent and Awning Company

Manufacturers of
Tents, Wagon Covers, Ore Sacks, and Camp Furniture

A. W. SWANFELDT, Proprietor.

250 SOUTH MAIN STREET, LOS ANGELES, CAL.

The Puget Sound Reduction Company
PURCHASERS OF
GOLD, SILVER, LEAD AND COPPER ORES

Special Facilities for Handling ores from the South-West and Mexico

EVERETT — — — — — WASHINGTON

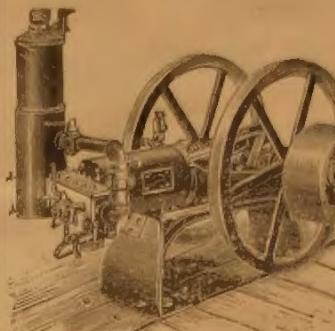
FULTON ENGINE WORKS
Mining, Milling & Smelting Machinery

Estimates Furnished on all Classes of Mining Work

P. O. Box 296, STATION "C"

LOS ANGELES, CALIFORNIA

Cheap Power!



MODEL OF 1897

Composed of Sixteen parts, constructed so plain and substantial that it may be taken to the desert mines without fear of unreliable operations, uses Storage and Dynamo for starting, the cooling jacket water is used over. Uses about 8-10 of a gallon of gasoline for each horse power for a twelve-hour run. Ten horse power engine weighs 2250 lbs. boxed for shipment.

Save Money by Using

— THE —
"DANIEL BEST"

Crude Oil Engine

This Engine can be operated on either Crude Oil, Distillate, Gasoline, or Kerosene. IT IS THIS CHEAPEST POWER ON EARTH and is not tied to any one kind of Oil, but can use any kind that will make gas and is not handicapped by being compelled to use a certain Oil. Do not forget this when in need of an Engine.

We guarantee our Engines to work perfectly on California Crude Oil, or Distillate, or any other kind of gaseous Oil; we however prefer CALIFORNIA CRUDE OIL, from Coalinga, Fresno county, for the reason that gas from Crude Oil will produce more power from the number of feet of gas used than from any other Oil and it is also a natural lubricant as well, the valves being always lubricated sufficiently to prevent them from sticking, thus assuring greater durability of the working parts than it otherwise would be in using dry gas. And another advantage we claim is, that danger from explosions is reduced to a minimum, there being no accumulation of gas but in used by the Engine as fast as it is generated and hence is absolutely safe. The following is a test that we made with one of our Five-Horse-Power Crude Oil Engines running ten hours on the different gas oil:

Cal. Crude Oil...40 grav.,	7½ gallons at 5c.	\$.375
Distillate.....40	7½ "	.40
Dom. Coal Oil...40	7½ "	.125c.
Gasoline.....7½	8½ "	.181c.
	1000 feet,	2.00

We manufacture all sizes from two-horse power up, and will guarantee that our Engines will run cheaper and are more simple in construction, have fewer parts and hence are more durable than any other Gas Engines on the market. Seeing is believing, don't take our word for it, buy one and investigate for yourselves. You can always see one in operation at our works. We will be pleased to see you and will at all times take pleasure in showing them up. Our Engines are specially adapted for running well and mining machinery—in fact, for any kind of power desired, we are the pioneers and first inventors of Crude Oil and Distillate Engines. WE ALWAYS LEAD AND NEVER FOLLOW. Send for Catalogue and Price List of the only genuine Crude Oil and Distillate Engine made.

The Best Manufacturing Co.

San Leandro, Cal.

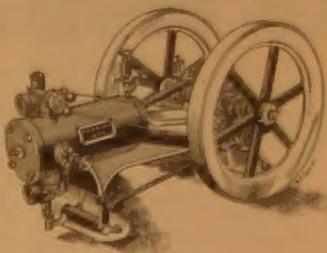
Pueblo Foundry,
Machine Shops and
Boiler Works

— MANUFACTURERS OF —

Wrought and Cast Iron Water Jacket Furnaces,
MINING and Irrigation Pumps, Engines,
Boilers, Hoisters, Tanks, Derricks, MINING
MACHINERY, Brass Castings; light and heavy
Forging. New and Second-hand Engines.
Boilers and pumps always on hand.

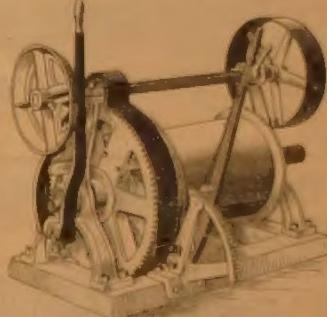
PUEBLO, COLORADO.

PERKINS Gas Engine



PERKINS GAS ENGINE

Perkins Power Hoist



Is light and portable weighing 1050 lbs., heaviest piece weighs 130 lbs., capacity 1000 lbs. one hundred foot per minute, will lift 400 feet. A Safety latch follows every foot of the lift, guaranteeing absolute safety.

PRICE \$125.00

For full particulars, apply to

Perkins Pump and Engine Co.

204 N. Los Angeles St., Los Angeles

L. J. Lassell,

ASSAYER & CHEMIST

All Orders by mail promptly attended to
and accuracy guaranteed. Prices
on application.

KINGMAN. — — — ARIZONA

JNO. LYNCH

Assay Office and Chemical Laboratory,

Work by Mail Solicited. Minus Examined
and reported on. Sampling of Ores
attended to.

Kingman. — — — Arizona

Mine Rail & Pipe

We have for sale large lot of 1856
rail for relaying and four miles
of 10½ inch castings. Also new
rails, all weights, for shipment
direct from mill.

Lee Chamberlain & Co.,

256 S. Spring St., Los Angeles

THE PUEBLO Smelting and Refining Company,

PUEBLO, COLORADO.

BUYERS OF

Gold, Silver, Lead and Copper Ores,
Copper Matte and Bullion.

Refiners of Gold, Silver, Lead and Copper.

Manufacturers of Bar and Pig Lead, Lead Pipe, Antimonial Lead, Copper Ingots,
Granulated Test Leads and Litharge.

Pays Highest Prices for all classes of Ores.

Especial Attention to Sampling by most Approved Processes.

Quick Returns on all Consignments.

CHAS. B. BOOTHE & CO.

— Dealers in —

Engines, Boilers, Pumps, Shafting Hangers, Pulleys, Belting, Lubricating Oils,

Engineering Supplies Mining Hoists Irrigating,
On Well.

IRON and WOODWORKING Machinery

— Of All Kinds —

Electrical Machinery and Apparatus.

Special Agents CANTON STEEL COMPANY, CANTON, OHIO

126-128 S. Los Angeles Street,

Los Angeles, Cal.

VULCAN ROPEWAY

*
For Conveying
Ore,
Cordwood,
Etc.
*



With Automatic Ore Loader and
Automatic Dumping Device.

EMPIRE, NEVADA, April 17th, 1896

Vulcan Iron Works.—GENTLEMEN: The rope-way furnished by your Company to convey tailings from Morgan Mill to Mexican Mill, a distance of seven-eighths of a mile, is giving entire satisfaction. We transport 200 tons of tailings in ten hours; one man does the whole business, including elevating tailings from hopper in the ground, operating Vulcan self-loader, and attending to the ropeway generally. The self-dumper requires no attention whatever. The Vulcan loader I consider the best feature in the whole Ropeway, making it possible for one man to load 200 tons in ten hours.

Yours very truly, J. P. WOODBURY, Sup't.

VULCAN IRON WORKS, Manufacturers of Mining Machinery,
SAN FRANCISCO CAL.

PUEBLO ORE Co.

ESTABLISHED 1880

Public Samplers and Mine Representatives.

Sales negotiated and ore looked after in interest of the shipper at any Pueblo smelter.

Prices finalized. Mill runs made.
Small lots purchased. D. W. GOOD, Manager
Box 10, PUEBLO, COLO.

CLARENCE HERSEY,
Assayer and Chemist,
(Established 1870)

LEADVILLE, COLORADO

Samples by Mail or Express Re-
ceive Prompt Attention

SPECIMEN ASSAY PRICES

Gold silver and lead, \$1.00; any two of the above, \$1.50; any one of above, 50c; copper mal-
eis, \$1.; platinum, nickel or tin, 25c.

Write for full price list and mailing envelopes.

Fraser & Chalmers CHICAGO, ILL.

Have Brought Out a New Line of
MEDIUM SIZED

STEAM HOISTING ENGINES



These are designed with great care by engineers familiar with the best previous practice, and knowing just what is wanted to render satisfactory service on a mine. Do you want such service? Then buy one of these improved machines.

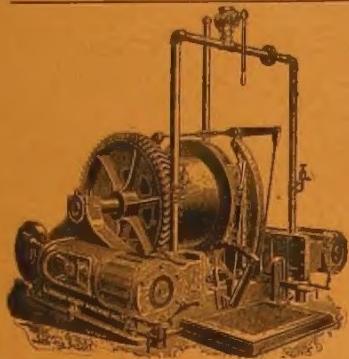


OUR SPECIAL LINES OF MANUFACTURE

On which we would be glad to quote are:
STAMP MILLS, SMELTING FURNACES,
CYANIDE PLANTS, ORE CRUSHERS,
FRUE VANNER CONCENTRATORS,
RIEDLER AIR COMPRESSORS AND PUMPS,
OTTO AERIAL TRAMWAYS,
SHOES, DIES, CAMS,
ROLLS AND JIGS.

Qualified by a Quarter Century of Experience to render you the best of service we invite your inquiries and patronage.

Fraser & Chalmers,
CITY OF MEXICO:
DENVER, COLO.
CHICAGO, ILL.
86 BROADWAY, N.Y.



DOUBLE CYLINDER HOISTING ENGINE

JOSHUA HENDY MACHINE WORKS, Nos. 38 to 44 Fremont St., SAN FRANCISCO, CAL.

Manufacturers of and Dealers in
All the Latest Improved

Quartz Milling, Pumping, Smelting and Electrical
Machinery, Boilers & Engines of ALL POWERS,
Mine and Mill Supplies.

BUILDERS of "HENDY" IMPROVED "TRIPLE-DISCHARGE" TWO-STAMP MILLS

PLANS, SPECIFICATIONS and ESTIMATES OF COST FURNISHED and CONTRACTS MADE
FOR FURNISHING and ERECTING MINING and MILLING PLANTS for all conditions of Use.

BAKER IRON WORKS

LOS ANGELES, CALIFORNIA

Mining and Milling Machinery, Atlas Engines and Boilers, Worthington Steam Pumps

Water Works Machinery
A SPECIALTY



SIOUX CORLISS ENGINES

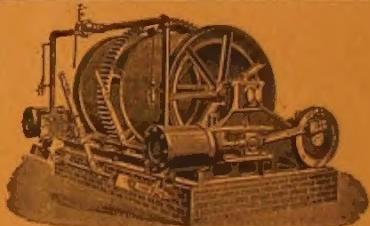
The BEST MADE Simple and Compound

The Murray Iron Works Company,

BURLINGTON, IOWA, U. S. A.

Engines * Boilers * Ice Machines

OF THE BEST GRADES



HOISTING ENGINES

HIGH GRADE

SINGLE, DOUBLE, TAIL-ROPE

Mining Timbers and Construction Lumber

(Caleasieu Long Leaf Yellow Pine Lumber)

Prices given for delivery to any point in Mexico by Rail through Porfirio Diaz, Nuevo Laredo or Paso del Norte, and by Vessel through Gulf Ports of Tampico and Vera Cruz.

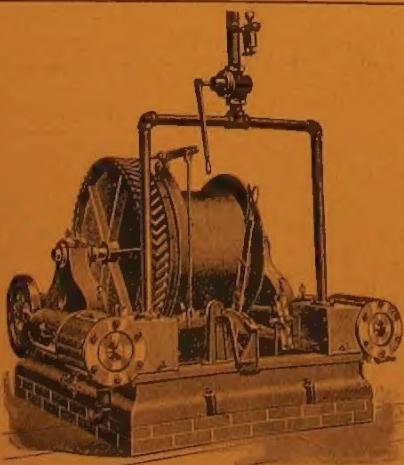
Bradley-Ramsay Lumber Co.

LOUISIANA, U. S. A.

ADDRESS INQUIRIES FOR PRICES TO

R. N. WATSON, AGENT.

APARTADO NO. 118 MONTEREY, N. L. MEXICO



PARKE & LACY COMPANY

21 and 23 Fremont St., San Francisco, Cal.



MINING MACHINERY

SOLE AGENTS FOR
THE INGERSOLL-SERGEANT AIR COMPRESSORS AND ROCK DRILLS.

SOLE LICENSEE FOR THE MANUFACTURE AND SALE OF

THE ROPP STRAIGHT LINE FURNACE, For Roasting, Chlorinating and Desulphurizing Ores.

WE CARRY IN STOCK

Horizontal, Vertical and Portable Engines and Boilers. Rock Breakers, Cornish Rolls, Pulverizers, Concentrators, Ore Feeders. Hoisting Engines, Horse Power Hoisting Whims, Water Wheels, Steam Pumps, Ore Cars, Wire Rope, Ore Buckets, Water Buckets, Skips. Blowers and Exhaust Fans, Shafting and Pulleys. Belting, Oils and Mine Supplies. Maganese Steel Shoes and Dies

Estimates furnished for Complete Plants for Hoisting Works, Smelters, Concentrating and Stamp Mills.